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PRACTICAL HINTS

ON

PLANTING ORNAMENTAL TREES.

BY STANDISH & NOBLE.

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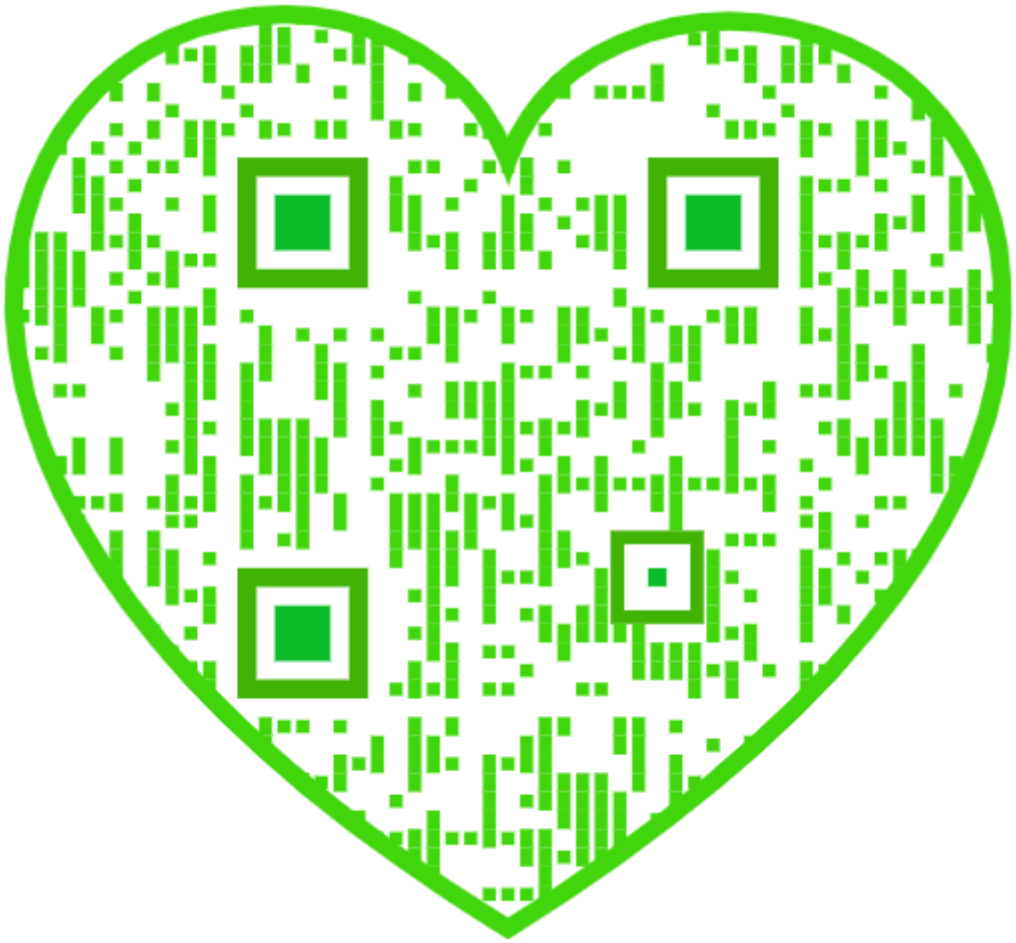

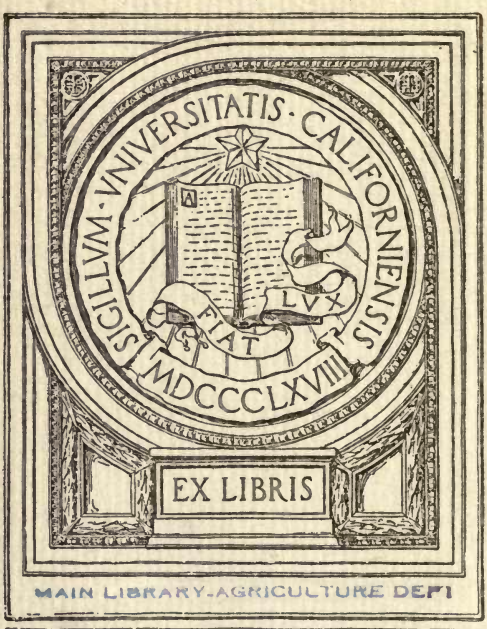

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PRACTICAL HINTS

ON

PLANTING ORNAMENTAL TREES,

WITH PARTICULAR REFERENCE TO CONIFERÆ;

IN WHICH ALL THE HARDY SPECIES ARE POPULARLY DESCRIBED, AND THEIR MORE FAMILIAR SYNONYMS GIVEN:

ALSO,

DESCRIPTIONS OF THE PRINCIPAL OTHER KINDS

OF

Hardy Evergreen Trees and Shrubs,

WITH REMARKS ON THE SITUATION FOR WHICH EACH IS BEST ADAPTED, AND THE SOIL AND TREATMENT IT REQUIRES;

AND CLASSIFIED LISTS OF SUCH AS ARE BEST ADAPTED FOR PARTICULAR SOILS AND SITUATIONS.

TO WHICH IS ADDED,

INSTRUCTIONS ON THE CULTIVATION OF AMERICAN PLANTS, AND ON THE RHODODENDRONS OF SIKKIM-HIMALAYA.

BY STANDISH AND NOBLE,

BAGSHOT.

PUBLISHED FOR THE AUTHORS,

BY BRADBURY AND EVANS, 11, BOUVERIE STREET.

1852.

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LONDON:
BRADBURY AND EVANS, PRINTERS, WHITEFRIARS.

PREFACE.

—✦—

The want of a little manual, which should contain good practical instructions on planting, and at the same time serve as a guide in making a proper selection of plants for different soils and situations, has been long felt. When and how to plant? and what kinds of trees and shrubs are most suitable for this or that situation? are questions, which in some form or other, are often addressed to us; and the enquiries refer more particularly to evergreens—especially to Coniferæ.

The increasing frequency of such enquiries, and our being unable to give really useful replies to each applicant in the compass of a mere letter, have induced us to publish this little book, which it is hoped will, in some degree at least, fulfil the object intended.

With the exception of a few deciduous Conifers, all the plants described are evergreen. We have confined our observations to them, principally because they

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include our more conspicuous hardy trees and shrubs, and also because there is at the present time a preponderance in their favour for ornamental planting. We originally intended to have noticed the principal deciduous kinds in addition; but we found that, with even a comparatively limited selection, so numerous are they, the size of our book would be increased much beyond what we intended, and its price of course added to materially.

In speaking of the hardiness of the plants described, we have endeavoured to be as correct as possible. With that view, we applied during the past year to many persons in all parts of the country who were likely to be able to afford us assistance, by sending to each a prepared return paper, in which might be arranged in a tabular form the information we required. By that means we accumulated a mass of valuable evidence. And we had also previously made many useful notes during our journeyings in various parts of the kingdom.

Of the matter and its arrangement, a few introductory words may be thought necessary. First, there is a practical treatise on planting generally, in which reference is made to various kinds of soil and situation, and to the most suitable seasons for removing both deciduous and evergreen trees. Following this are some detailed instructions, which, while they are intended to refer principally to Coniferæ, will of

course equally apply to other choice ornamental trees. In this part of the book is a complete list of hardy Coniferæ. A short popular description of each is given, showing its habit, general form, and use as an ornamental plant. The principal synonyms of each are also given.

Then there are treatises on the cultivation of American plants, and on the newly-introduced Sikkim Rhododendrons. The remainder consists of descriptions of the principal hardy evergreen trees and shrubs, with remarks on the situation best adapted for each, and the soil and treatment it requires; with copious classified lists of the kinds best adapted for particular soils and situations. We believe the latter will form a useful guide to persons about to plant.

It now only remains for us to offer our sincere thanks to the numerous gentlemen who so kindly and promptly assisted us by filling up our return papers. We feel that particular reference to each will not be thought necessary; and we hope that our acknowledgments thus collectively expressed will not be considered as indicating in us a less appreciation of their individual assistance.

*** As we are anxious to collect every possible information in reference to Hardy Ornamental Shrubs and Trees, we venture to solicit communications in

connection therewith. Any information of the local hardiness of species not generally known as such, with notices on the nature of the soil and situation, or of any peculiarity in their treatment, will be especially valuable. In short, any fact will be welcome. And we should be glad to furnish (free of postage, and stamped to return) one of our papers to any one who will oblige us by filling it up and returning it.

BAGSHOT, *May*, 1852.

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We may state here, that MR. GEORGE LOVELL, who has rendered us valuable assistance in preparing this work, may be consulted on the subjects of which it treats, as well as on every thing connected with LANDSCAPE AND ORNAMENTAL GARDENING.

PRACTICAL HINTS

ON

PLANTING ORNAMENTAL TREES.

INTRODUCTORY REMARKS.—PLANTING IN EXPOSED PLACES.—PLANTING AMONGST OTHER TREES.—PROPER SEASON FOR PLANTING.

THE labours of the planter, whether considered in an ornamental or a commercial point of view, are undoubtedly amongst the most important of the industrial arts; and in the practice of them there exists a beautiful combination of purpose. The useful and the ornamental are intimately blended in them. The proprietor who clothes the barren hill with an appropriate vegetation, or rears a forest on a sterile heath, at once shelters and adorns the country, and contributes to the source that will supply the future demand for timber. He gratifies the eye with a varied landscape, and adds value to the surrounding fields; confers great benefit on the present generation, and bequeaths a valuable legacy to posterity.

Did the limits or design of the following pages admit, we might enlarge on the many topics here suggested; but as our purpose is to treat of planting in its ornamental aspects principally, we must pass them over. Yet as we have seen that planting in its economic aspect bears, in many points, a close relationship to the ornamental, what we shall have to say of the latter will in a great measure apply equally to the former; for while a treatise on ornamental planting will bring under discussion all the topics which, were it considered in a commercial aspect, could possibly be suggested, it will add others of a higher nature, viz., such as relate to taste.

Because a plantation is intended merely for the production of timber, there is no valid reason why it should not be arranged with a view to picturesque effect. A wood with a hard, formal outline, and numerous unsightly angles, is not better suited for the purpose than one with a flowing and picturesque boundary, here advancing, there retiring; presenting deep shadows and broad lights, with all the beautiful intricacy which a well-arranged wood is so capable of producing, and which is so highly appreciated by the eye of taste.

But sensible as we are of the wide field for improvement, both in the arrangement and management of woods of large extent, and which too often are blots rather than ornaments in the landscape, it is to the woods and trees, as forming immediate appendages to a mansion, that we intend the remarks, contained in the following pages, principally to apply.

And here we would impress on all who may contemplate planting ornamental trees, to previously decide on some arrangement, considered in connection with the situations they are to occupy, their individual characters, and the object sought to be attained.

From the practice of indiscriminate planting, few who possess gardens but have cause to regret some untoward result arising from it. Choice specimens spoiling each other from having been planted without an acquaintance with, or recognising their several characters, and which were only perceived when too late to remove any, otherwise than by the axe. And views obstructed, and rare specimens hidden by others of an inferior description, and which cannot now be conveniently removed, are some of the vexatious results which spring from the practice of planting, without well considering the probable connection of future results with present operations.

The principal natural agents which influence the labours of the planter, and the ornamental planter especially, are climate and soil. The former, however, is the more important; for while there are but few instances in which a naturally sterile or unfavourable soil will not yield to the influence of science and industry, climate will ever retain its great characteristics unchanged by the agency of man, and the planter, the gardener, and the husbandman, must be content to adapt their several operations to its general influence, or to the local peculiarities which observa-

tion may reveal.* A judicious application of shelter, with a discrimination in the choice of aspect, will do much to modify the injurious tendency, and afford the favourable points of climate in any given locality; and drainage, with cultivation, will surmount many difficulties arising from an inferior soil. For there are but few situations where draining, as a preliminary, or as an adjunct to planting, will not be found highly beneficial.

The importance of a proper course of preparation for, and subsequent attention to, young and newly planted trees, is not sufficiently recognised by planters generally, or, if recognised, is not practically demonstrated. There are of course many situations in which the most ordinary care, not to say neglect, will be rewarded by great success. But such exceptions should not be admitted as precedents, marking out a course of procedure for all localities indiscriminately. If two trees are planted, one on a bleak hill side, the other in the rich deep soil of a sheltered valley, and both receive similar attention, other circumstances being equal, it is not probable that a like success will attend both. Yet judging from the practice of many, they do not seem to consider the necessary operations to ensure success in planting, as of a character to demand anything beyond the most ordinary attention. A hole of barely sufficient size to contain the roots, and a stake to support the stem if necessary, is all

* The great changes which are known to be effected in the salubrity of a climate, by cultivation on a large scale, are not lost sight of here, but they are of so extended an application as scarcely to come within the province of the present enquiry.

the care bestowed in very many instances. Trees thus scantily provided for, will no doubt, when highly favoured by soil and situation, succeed well enough. But such can only be exceptional cases, and wherever early and complete success with rapid growths are required, whether in a plantation, a group, or but a single tree, a properly prepared situation should be provided and a systematic course of subsequent attention given.

The varieties of situation in which it may be desirable to plant are of course very numerous, and their local peculiarities highly diversified, and no treatise however elaborate in detail could bring the whole under review. An actual inspection of the locality would in many instances be necessary to determine the most desirable mode of procedure, and to enable one to form a correct opinion as to the most suitable kind of trees to be employed.

But though a variation in detail may often be found necessary to success in planting, the general principles will remain the same, under all circumstances and conditions. Without reference to the many minor varieties of each, which, as before observed, can only be properly understood and treated where they occur, we have arranged our observations under two heads, viz., Planting in open and exposed situations, destitute of shelter of any kind; and planting amongst trees already existing. It is hoped that, with the instructions given, will be found advice applicable to a great variety of circumstances.

PLANTING IN EXPOSED SITUATIONS.

The position of the different groups and detached specimens having been decided on, the first consideration should refer to drainage. A drain should lead from or intersect each position intended for a single specimen, and a number in proportion to the size be in connexion with the spaces allotted for each group. It will not be always necessary to afford separate drains to each. A judicious application of cross-draining, made with reference to the natural declivities of the ground, will equally accomplish the desired purpose.

The point next demanding attention will be trenching. The situations for single trees should be trenched to the extent of at least ten feet in diameter, and eighteen or twenty inches deep, and those for the groups of a like depth, and considerably wider every way than will be required for the reception of the permanent trees. After the necessary draining and trenching, and if a season's delay is of no moment, it will be found an excellent system to take a root crop before planting. The manure and consequent cultivation will bring the soil into an excellent condition for the reception of the plants; and although a season is *apparently* lost, it will not prove so in reality. The increased rapidity of growth in soil so well prepared will more than compensate the seeming loss of time.

There will, of course, occur many situations where this application of manure, as far as the trees intended

to be planted are concerned, will be unnecessary, while in others of a very inferior character, both a liberal manuring and cultivation will be requisite to bring the soil into a condition for their reception, with fair prospects of success. The amount of manure and subsequent cultivation will, of course, be given in proportion as circumstances may seem to demand them.

But there is an unhappy propensity prevalent to consider a tree as destitute of the ordinary wants of plants in general, and to believe that if it is provided with sufficient soil to cover its roots, no matter what the quality may be, it cannot possibly fail to thrive; but, on the contrary, care and attention are as imperative in preparing the soil for trees, and will be followed with equally satisfactory results, as in the treatment of any other of our cultivated plants.

An important auxiliary to success in planting, in the kind of situation we are at present treating on, is shelter. From its absence alone may be attributed many failures. The conditions which plants enjoy while in the sheltered nursery-beds are of so opposite a character to what they experience when removed to open situations, exposed to drying winds and scorching suns, and wholly destitute of shelter, that frequent failures, where no precautionary measures are taken, will not upon reflection cause much surprise.

The preliminaries of draining and trenching having been properly attended to, and the soil in a condition to receive the plants, and the exact spot for each *permanent* tree determined on, mix in the site for each, if the state of the soil seems to demand it, a portion

of decaying vegetable matter, as rotten leaves, for the immediate reception of the plants.

Then, with the exception of such prepared sites, plant the whole of the trenched ground somewhat thickly with common evergreen trees and shrubs, for the purpose of affording shelter to the ornamental and permanent specimens subsequently to be placed there. If the situation is very much exposed, and the soil unfavourable, the trees planted for shelter should be allowed to make one or two seasons' growth before placing the permanent specimens. And, in the meantime, they too should be prepared to meet the difficulties of their intended new situations, by a course of treatment, for which the following instructions are offered:—Procure some pieces of elm plank about $1\frac{1}{4}$ inch square and nine inches long, also a quantity of larch stakes about $1\frac{1}{2}$ inch in diameter, and of the same length with the pieces of elm, and split them longitudinally. Then take four pieces of the elm, one for each corner, and nail to them the pieces of larch, leaving spaces about three-quarters of an inch between each two, and one side, or rather the top, entirely open. You have now the skeleton of a box, or, perhaps, it might be properly called a crate, for the reception of a plant, and the spaces between the bars are to allow free egress to the roots. Prepare as many crates as you intend removing plants to exposed situations. Have ready some good turfy loam, with which is mixed a little leaf-mould, fill the crates with the compost, and place a plant in each, as in the ordinary mode of potting. At first they should be

placed in sheltered situations, but removal should take place twice a-year, in spring and autumn; and at each remove a less sheltered situation should be chosen, till they at last occupy a tolerably exposed locality. They should always be kept planted as deep as the top of the crate. At the close of the second season they will be in a suitable condition to be planted in their permanent places. They need not be removed from their crates, as they will be quite rotten before the roots are of sufficient size to be obstructed by them. By adopting such a course, success will be obtained where every other means have failed.

It is also an excellent system to employ crates for preparing trees intended for removal, even to favourable situations. By using them larger and stronger, large and valuable specimens may be removed without risk of failure; and the system is especially to be recommended for trees which are known to transplant badly.

In determining the distances which the permanent plants should be placed from each other, no rule can of course be given. As they are ultimately to form a picturesque arrangement, a design will, of course, have been previously decided on, in which their individual characters, as well as effect in combination, will be recognised. Due attention to this will prevent much subsequent vexation. Where several are to form a group, care must be taken that their ultimate appearance will not be that of a clump—the most unpicturesque and artificial of all arrangements, and is that best calculated to destroy the individual character of the trees composing it. They should be so placed that their

branches shall mingle without destroying each other. A number of trees, though in a great measure detached from each other, will, when viewed from a little distance, seem to mingle together. And the arrangement may be such, that, from whatever position they are seen, a different form of outline shall be presented to the eye. Variety is thus produced; and while each tree preserves its individual character upon a close examination, the distant effect of the whole is that of a picturesque group. There is no necessity for crowding valuable trees together for the purpose of producing the appearance of a close wood, when seen from a distance.

We have dwelt above on the advantages produced by a proper and timely application of shelter to trees in exposed places. But highly injurious results may arise from it, if its removal is not attended to when it in any way obstructs the progress of the trees it was intended to protect. It must never be forgotten, that such aids are only valuable in assisting the young trees the sooner to become established, and that it must be wholly, but gradually, removed, as the latter become sufficiently robust to be independent of such assistance.

In selecting plants for the permanent specimens, some care will be necessary, as much of the ultimate success will depend on the character of those employed. As a general rule, in proportion to the exposure of the situation, should the plants chosen be smaller, always however supposing them to be thoroughly healthy and robust, and such as have not previously been favoured

by soil or situation to an undue extent. Nothing is gained by employing large plants in exposed places. On the contrary, much time is often lost by the practice, even though they should be in the best possible condition. The larger and taller the plants, the more are they exposed to the untoward circumstances consequent on the situation.* Plants of but a few feet in height, when placed in exposed situations, require the assistance of a stake, or the winds quickly damage them to a great extent; and the utmost care will not wholly preserve them from injury. And when others of eight or ten feet in height, as are sometimes employed, with the intention of producing immediate effect, are placed in similar situations, they frequently prove worse than useless. Two or three stakes are required to each, to enable them to withstand the influence of the gales; but no amount of available support will prevent them from being disturbed. The action, though slight at first, is every day augmented. They become loosened in the earth. Water—especially if the soil is tenacious—accumulates at the base of the stem and about the roots, chilling and retarding their vegetative powers. During this, rapid evaporation is draining the tissues of the plants, the loss of which their dormant powers cannot recruit. Death, or an approximation, ensues. The foliage dies, and their appearance is calculated to disfigure rather

* So sensible are the Scotch planters of the disadvantage of employing large trees upon their bleak mountain sides, that the neighbouring nurserymen find plants beyond two or three feet high as almost dead stock; the sale for such being so limited, that any forest trees beyond that height are generally rooted out and used as fire-wood.

than to beautify the places they occupy. Nor do matters often assume a more cheerful aspect with those which survive to the following season. Sometimes a feeble attempt at vegetation is perceived, but it too often proves an expiring effort. Many will linger on for years, and a few ultimately succeed. But not only would time and labour have both been economised, but the desired result have been more fully arrived at, by adopting the *apparently* slower means of employing young trees, and taking the necessary precaution to ensure their success.

There are, of course, many situations, where large trees can not only be planted with perfect safety, but where it will be highly requisite to do so, and where no risk will attend their removal, if ordinary precautions are taken. It is in open and exposed situations that we are endeavouring to show the inexpediency of employing them.

For several years after planting, the soil about the trees should be frequently stirred, all weeds destroyed, and every obstruction to their progress removed: and as those employed for shelter encroach upon the permanent specimens, they should be curtailed, and, when necessary, wholly removed; in fact, their removal should be effected before they encroach. By thus progressively destroying the shelter, sometimes a few branches, and occasionally a whole tree, as circumstances seem to demand, the change is gradually produced and no injurious check results to the remaining plants. Of course the shelter from the boundaries of the groups, and from the most exposed situations, will

be the last removed. And for the purpose of giving depth and massiness to some of the larger groups, a part of the common trees may be left as a back-ground to the more valuable specimens. And such an arrangement could be provided for to a greater extent by keeping it in view when planting.

It will frequently be found highly advantageous to include what are ultimately to be detached groups and single trees into one common plantation when young. A greater amount of shelter will be afforded, and each tree, while it assists to protect the other, will participate in the general benefit. And when the whole of the shelter is ultimately removed, the permanent trees will appear in their intended positions and relations.

The great change of climate which plants experience when removed from the nursery to open and exposed situations, is a principal cause of their frequent failure there. The comparatively dry state of the atmosphere in the latter is not the least prominent source of injury. Wherever vegetation is scanty, there will the atmosphere be deficient in moisture, a subject of great importance when considered in relation to the progress of young trees. And as vegetation not only participates in the benefits, but materially augments the atmospheric moisture, of a district, it follows that, by employing other trees as shelter to those we are most solicitous about, we combine several essentials to success, viz., breaking the force of winds, affording a genial shelter, and condensing and retaining a large amount of moisture.

What is termed "dead" shelter, *i. e.*, close hedges, reed fences, and similar expedients, is often employed as temporary protection to young trees in exposed places, but the advantages derived from such, to say nothing of its many inconveniences, and its anything but attractive appearance, is not nearly so great as that arising from the employment of living trees. The former is every day decreasing in efficiency, the latter becoming more valuable.

With due attention to the several points which have been dwelt on, viz., draining, trenching, shelter, and a proper selection of plants, aided by a thorough system of subsequent management, success will be attained in almost any situation, and under a great diversity of circumstances. Failures in planting oftener arise from an injudicious or imperfect course of treatment, or from a bad selection of plants, than from anything really antagonistic in the soil or situation.

PLANTING AMONGST OTHER TREES.

It is often the object of proprietors to remove woods which are composed of the ordinary indigenous trees of the country, and to replace them with others of an exotic and more ornamental character. But the advantages of such existing woods are generally too great to allow of their removal before others are provided to compensate their loss.

The ordinary mode of planting to effect this is generally productive of but feeble results, from the system of operations being destitute of the real

essentials of success; yet such situations offer many advantages to the planter, though at the same time, unless great care is exercised, the disadvantages will more than preponderate. An efficient shelter, a large amount of atmospheric moisture, and generally a good soil, highly enriched by yearly deposits of vegetable matter, are in the favourable scale. In the opposite, a deficiency of light and air, drip from the heads and encroachments from the roots of the existing trees, are amongst the most formidable difficulties to contend with. It is for the planter to seize upon the advantageous features, and to combat those of an opposite tendency.

In commencing operations under such circumstances, an examination of the character and condition of the existing trees will afford a good criterion of the state of the soil, and assist in forming an opinion as to the amount of preparation required.

Whether it is found necessary to drain or not, a thorough preparation of the soil will be indispensable.

An arrangement having been decided on, and the position of the several groups and single trees set out, the spaces necessary for each must be thoroughly cleared of underwood, and sometimes an occasional tree will require removal. But in selecting the places for the new trees, every advantage consistent with the intended arrangement will, of course, be taken of the spaces between those already existing, and of any situations altogether clear of them. And it will often be necessary to curtail the branches of such as are contiguous to those newly planted, for the double

purpose of admitting as much light as possible, and to prevent drip, which is highly injurious to most young trees. To admit all the light possible, every means should be employed that suggests itself. Without a large amount, growth will be slender and etiolated, and if the trees are allowed to attain a considerable size in that unhealthy state, they will be wholly unfit to dispense with the assistance of the surrounding shelter.

In preparing the situations for planting, all roots met with should be destroyed. Little or no damage will result to the trees to which they belong. Nor would it be of any moment if such should be experienced by them, as they are ultimately to be removed altogether.

Nor must attention flag after the trees are planted. The soil about them should be kept stirred and free from weeds, and the encroachments of the roots from those surrounding them prevented by yearly cutting off with the spade such as may have found their way to the newly prepared soil. But as the young trees progress and push their roots to its full extent, any further operation with the spade must of course be discontinued. And by that time, if previous directions have been attended to, they will be in a position to dispense with such assistance. But during the several seasons which must necessarily elapse before they have attained that extent, no encroachments from their nurses must in any way be permitted. Every branch or tree that would seem to retard their progress, must be instantly removed.

And as the necessity for the presence of the original trees at all becomes yearly of less importance, they must be progressively removed, leaving, of course, those in the most exposed aspects till the last.

Although the general appearance of the existing wood may be unattractive, there is no reason why the intended one should be also. Any desired effect may be produced with facility. The *proposed* ultimate results having been at first fully decided on, every subsequent operation can be performed, every tree placed or removed with reference to the accomplishment of the intended effects.

It has been observed above that the soil of woods is generally favourable to the growth of young trees, and that the yearly deposits of vegetable matter constantly increase its fertility. In the majority of instances it is so. But in others, not only are there no such deposits, but the soil is excessively poor and hard, and of such a nature, that, without a considerable amelioration, it would be useless to plant in it.

It is beneath old trees, which have long since exhausted the surface soil, and where there is no undergrowth, that such circumstances occur. As there is nothing to arrest the yearly fall of leaves, they are blown away, and the deficiency of light and moisture wholly prevents the establishment or progress of any kind of vegetation. Yet under such circumstances we have frequently seen plants stuck in—it cannot be called planting, and of course expected to succeed without any one provision having been made that could, after

a moment's reflection on the nature and requirements of plants, be considered as likely to contribute to success; with no preparation beyond opening a space in the hardened soil, barely sufficient to contain the roots, and filling it with a new compost, as if plants could flourish upon doses of nourishment, homœopathically administered; deprived of light and air and moisture, and, in a word, destitute of the most obvious necessities of vegetable life. That plants should exist at all under the circumstances is a matter for surprise.

To rear a new race of trees under such conditions will require a large amount of labour. It will be of no use to adopt half measures. Total failure will assuredly be the result.

When the wood has been cleared of such trees as it may be necessary or convenient to remove, and the soil properly broken up, a year should be allowed to elapse before planting. During that period the rains will thoroughly moisten the whole, and by occasionally turning it, the influence of the sun and frost will greatly ameliorate its general condition. But from its being utterly exhausted of all fertilising properties, a considerable amount of fresh soil should be added, and incorporated with it, and that immediately about the roots of each newly planted tree should consist of it entirely.

If the necessary precautions are taken, and the treatment we have recommended afforded to trees planted in the several situations alluded to, their growth will be very rapid, and but a few years elapse before they assume an effective character.

Where the object is only to produce an undergrowth, amongst trees wholly destitute of it, as in covers for game, or for the purpose of ornamenting "drives," the operations previously detailed will be equally imperative, so far as the preparation of the soil and subsequent attention apply, but as in this case none of the existing trees will be removed, a selection of low-growing kinds that are known to thrive best in such situations will form an important item in contributing to success. In another place will be found a list of the most suitable plants to select from. With reference to planting single specimens of ornamental trees, under the ordinary circumstances met with in the grounds of a residence, we need not say much in this place. The necessary details will be fully discussed when treating on Coniferæ. The practice there insisted on will be applicable to all kinds, under like conditions. But if the directions given should appear too elaborate for some, the error will be always in the right direction, and to commit it will be advantageous rather than detrimental. A proper discrimination will always determine where to curtail.

PROPER SEASON FOR PLANTING.

With regard to the most suitable season for planting about which so much has been said and written, and to which so much importance is attached, nothing definite can be said. So much depends on the state of the weather, the condition of the plants, and various

local circumstances, that advice, which would in some cases be valuable, would in others only mislead. Something will always remain to be decided by the judgment and discrimination of the planter.

As a general rule, March is the worst month of the year for removing evergreens. It is generally accompanied by cold parching winds, the worst possible condition to which newly planted shrubs can be subjected. A hot dry season is bad; but a cold dry one is much worse. But if the plants to be removed have been frequently transplanted, and are well furnished with fibrous roots, the operation may be successfully performed at almost any season of the year.

Though a cold dry season, as we have just observed, is the worst possible in which to transplant evergreens under any circumstances, if the plants are coarse-rooted from not having been previously removed, the difficulties are much augmented, and the chances of success decrease in an equal ratio. It will be impossible to remove such without destroying the greater part of their fibrous roots, and as the vegetative powers of the plants are dormant, others will be but slowly produced. Under such conditions, the leaves will help to destroy rather than accelerate vegetation. Evaporation from the leaves of plants is great under ordinary circumstances, and in very dry weather it is much increased; and when the state of the atmosphere is such that it contributes nothing for absorptoin, and from the absence of rootlets no moisture can be sent up from the soil, every drop of sap is quickly drawn from the branches, the leaves

dry, the bark shrivels, and death ensues before new roots can be produced to contribute a fresh supply.* From this it will be readily seen, that for evergreens, with large thick leaves, as hollies, Portugal laurels, evergreen oaks, &c., and others, which, from not having been previously transplanted, will be coarse-rooted when removed, a warm moist season, just before they make their young shoots, or when they are nearly ripe, and while the sap is still in an active state, will be the best season to transplant. And if the roots are "puddled" when planted, it will greatly assist them. And if their leaves can be kept syringed when the atmosphere is dry, for a fortnight or three weeks after planting, by that time fresh roots will have been made, and the plants are safe. It will, however, be only with a comparatively limited number of trees that the latter precaution can, of course, be adopted.

Of the highly beneficial results which are produced by the practice just alluded to in cases where failure is to be apprehended, we give the following example:— The evergreen oak is proverbially difficult to transplant successfully, more failures are experienced with it than with any other tree: but with good manage-

* We may observe here, that, whenever the leaves of newly-planted evergreens dry up and *remain upon the branches*, death invariably follows, although sometimes the roots and lower parts of the stem will retain sufficient vitality to produce new shoots. But if, on the contrary, the leaves *fall off* soon after planting, and the bark appears plump and healthy, they will not die, but one or two seasons will be required to enable them to recover their natural vigour. These remarks do not apply to Coniferous plants, Heaths, and a few others. When they lose their foliage, recovery very rarely follows; nor will they push new shoots from below, like ordinary evergreen shrubs.

ment it can be successfully transplanted, even under unfavourable circumstances. Some years since, Mr. Ingram, gardener to her Majesty at Windsor, moved some large specimens in the first week in June, and which had not been previously removed for many years. They were carefully taken up, and the roots well "puddled" when planted, and the weather was moderately moist; but when it was not so (as it was very desirable that the trees should succeed), a man was kept constantly syringing their leaves and stems for about three weeks. The plants succeeded well, and are now fine trees.

Under ordinary circumstances evergreens may be safely removed during the latter part of August, in September and October, or even in April and the early part of May. But as we have previously observed, they may, under certain conditions there detailed, be successfully transplanted at almost any season. We have succeeded well with many in May and June. In fact, by a timely preparation and proper subsequent attention, scarcely any circumstances can occur in which they may not be removed with safety. For deciduous trees, it matters little at what period they are transplanted, between the time of casting their leaves and of commencing to vegetate in the spring. But immediately on the fall of the leaf is the most suitable period.

CONIFEROUS PLANTS.

Climate.—Soil.—Selecting the Plants.—Planting.—An enumeration of the principal kinds suitable for out-door cultivation, with their synonyms and descriptions.

Climate.—Anomalous accounts of the hardiness of particular Pines in different localities are constantly reaching us. Thus, one gentleman complains that certain species, which succeed admirably with his neighbour, always fail with him, though the localities appear of a similar nature, and other circumstances are equal; another, that many of his trees pass uninjured through the ordeal of the most severe winter, but are seriously damaged by frosts in spring; while a third does not experience any material inconvenience from spring frosts, but regrets the loss of vigorous shoots in autumn and early winter; and the writers generally conclude by expressing their belief that the climate of their locality is unfavourable for the cultivation of such plants.

Now, without being able, in the absence of an acquaintance with the circumstances under which such failures occur, with the original condition of the plants, and with the mode of planting, and subsequent attention, to decide on the real cause of such failures, we have no hesitation in asserting, that, in the majority of instances, causes other than the direct influence of climate alone are at the root of the matter.

Coniferous plants, occupying cold undrained heavy soils, are often rendered susceptible to the influence of autumn frosts, from the fact that they do not commence growing till late in the season, and, as a natural consequence, their shoots are not sufficiently matured when growth ceases in the autumn. Under favourable circumstances growth commences early; in many instances, as we shall presently show, too early; and a long season is required to thoroughly ripen the wood. That this process should be complete is a very important point in their management, and every precaution should be taken to facilitate it. But under the unfavourable conditions just alluded to, it is not so. Short days, deficient in sunbeams, with the attendant rain and fogs of early autumn, arrive, when the shoots are in a half ripened state. Further progress towards maturation is prevented. Frosts succeed, and the destruction of the main points and those of the principal branches is the result.

Now, under the most favourable circumstances, a tree thus mutilated and checked would require two or three seasons to recover. But year after year the same untoward circumstances await it; recovery is impossible. It loses its attractions, and is only allowed to remain by its proprietor as a monument of the supposed unfavourable climate. We shall have occasion to speak of the effect on Coniferous plants of damp without frost in another place.

But the effects of spring frosts in the Pinetum is perhaps of more frequent and general occurrence, and

is productive of more disastrous results, and to a greater extent than such as we have been describing. There are numerous species of Abies, the Himalayan kinds especially, which in many places lose year after year their early growths, preventing their progress and destroying their beauty. These effects too, we believe, may be obviated in a great degree, if not wholly, and the readiest means of attempting it will be first to learn the nature of the causes inducing them.

Most of the species which suffer from spring frosts, though perfectly hardy in other respects, are popularly known as tender. This impression is circulated with them, and cultivators, acting upon an erroneous principle, almost invariably assign to them the warmest and most sheltered places in their grounds—a practice that must always defeat the intention. The real cause of their suffering from spring frosts arises from their great excitability, inducing them to commence growth at so early a period of the year. And the warmer and more sheltered the position they occupy, the more are they likely to suffer. All the species which are easily excited into growth should, if possible, be placed upon elevated situations. The temperature there is never so fluctuating as in the valleys. The diurnal as well as seasonal changes are more gradual, and though the average yearly temperature is less than in the sheltered low lands—a point of great moment with the agriculturist, as well as every one engaged in the cultivation of annual plants requiring a high summer temperature for their full development, as most of the Cereals—it by no means

acts detrimentally to the plants of which we are speaking.*

Both spring and autumn frosts invariably affect vegetation in the valleys to a greater extent than on the neighbouring hills, as most of our readers know well enough. A September frost will destroy the dahlias and many soft-wooded plants in a low-lying garden, while others on an adjoining hill will wholly escape. And late spring frosts in similar localities, which in our uncertain climate frequently succeed a period of warm weather, greatly injure many plants that are easily excited into growth. Such are the spring-tender firs. To enable them to succeed well, they must be placed beyond the influence of undue excitement, and to remove the cause is to supply a remedy. But if an elevated situation cannot be procured, as will be the case in many localities, the next best will be in a dry soil, sloping to the north, and where they are screened from the influence of the spring sun.

In such situations, the yearly amount of growth may not perhaps equal that which would sometimes be produced, supposing the trees to escape the spring

* Few persons are aware of the extreme variations from heat to cold which occur in low sheltered valleys, and how much greater they are than on elevated sites. Such extremes are highly detrimental to spring-tender plants: very often after two or three weeks' or even a month's mild weather, which frequently occurs between February and the end of April, and when plants which are easily excited begin to throw out their young shoots, the weather suddenly changes, and we often get in the valleys from 10° to 15° of frost. The consequence is the loss of all young growths, and the beauty of the trees is destroyed for the rest of the year. If the same trees had occupied elevated situations, growth would not have commenced, neither would the frost have been so severe, and consequently they would have escaped unhurt.

frosts, in warmer localities. But the certainty that every shoot will be preserved will more than compensate for the very feeble chances of a more rapid progress. We may here observe, that many of the spring-tender Pines are not so except when young. Specimens which suffer much then will struggle on from year to year, occasionally in favourable seasons adding an inch or two to their height, till they ultimately escape altogether and push into vigorous and handsome growth.

Abies cephalonica, a well-known spring-tender species, is a remarkable instance of this progressively acquired hardiness. At R. Mangles', Esq., Sunning Hill, Berks., is a fine specimen, some fifteen feet high, being one of the first plants of the kind raised in this country, which is never damaged from frost now, but in its early state frequently suffered much. In the same neighbourhood, are other specimens of this fir, of the same age with the one just mentioned, and which, like that, suffered much and from the same cause when young, but which have long since ceased to evince any tendency to early growth, and, of course, escape the attendant consequences. It may be worth while to mention, as a strong exemplification of the principles we have endeavoured to establish, that the first-named specimen occupies an elevated and an open situation; the latter very sheltered ones; but the former is double the size, and of much greater beauty than either of the others. The cause, of course, is to be accounted for by the fact that, favoured by its position, it never suffered so

severely nor so frequently from spring frosts as those occupying warm and sheltered situations.

But apart from the general principles which observation is enabled to gather of the relation of climate to vegetation, there are in every locality peculiarities in the seasons, a knowledge of which can only be gleaned and properly applied upon the spot where they occur. General principles are only valuable as such; practice and observation can alone render them of real value.

Soil.—Naturally Pines do not affect deep or rich soils: dry mountainous districts are their favourite habitats. Some few species are, however, found to prefer deep and fertile soils, amongst which several of the Abies are conspicuous. In cultivation, a general uniformity of soil is found to be productive of satisfactory results; but in planting large districts, presenting a diversity of soil and situation, a selection of the most suitable species for each will not only be desirable but necessary. For although all, or nearly all, the species will succeed well in a similarity of soil and situation of a favourable character, such, for instance, as would be afforded them in a collection of the different species constituting a Pinetum, there are only certain kinds that could be advantageously employed under adverse circumstances, as on barren hills, or marshy districts, or on the sea coast. Classified lists of the most suitable kinds for different districts will be found in another place: at present we confine our remarks to the Pinetum.

The situation chosen should, if possible, present a

variety of aspect, the surface be varied, the soil a friable loam, and the subsoil dry. If the last most essential condition is not naturally present, it must be induced by art. To be able to make choice of aspect will be of great service in assigning suitable positions to each species; and the varied surface will contribute to produce a picturesque arrangement.

But it often occurs that persons are desirous of planting ornamental specimens in situations where the natural soil is wholly unfit for the purpose; under such circumstances, each tree will acquire a situation prepared for its reception by removing in part, or wholly, the natural soil, and replacing it with a more suitable compost. For that purpose nothing is preferable to sound loam of an open texture. The surface soil from a rough old pasture, if it can be procured, will be admirably adapted: if it can lie a year or so to decompose its vegetable matter, so much the better. But there are no objections to its being used in a fresh state.

The details of planting, under various conditions of soil and situation, will be given under the head "Planting."

Selecting the plants.—The condition of the plants employed will, in no small degree, influence their present progress and future success. And it unfortunately happens that the very conditions which are decidedly antagonistic to success are those which the majority of persons seize upon as the most valuable. We allude to the universal disposition to choose plants

in pots. It cannot be too soon impressed on purchasers that to do so is to act contrary to their own interests.

We frequently receive orders for Coniferæ, accompanied with instructions to the effect that if the plants named are not in pots, on no account are they to be sent. We know how inferior for the purpose required such plants are, when compared with others grown in the open borders. But as we are, of course, anxious to comply as far as possible with the wishes of our customers, we despatch such as are desired. A prejudice exists against plants removed from the open borders; in numerous instances it is a just one. It has arisen from the fact that many growers do not transplant often enough. The consequences are, the plants become coarse-rooted, and, being removed in an indifferent condition, are often lost before they can recover the check consequent on their change of situation. But the remedy for this is in the hands of purchasers: if coarse-rooted plants cannot be sold, growers will cease to bring them into the market.

But the disadvantages of pot-grown plants are, as a general rule, of equal magnitude with the worst condition of those badly managed in the open borders. Yet purchasers patronise the former to a large extent, and to the exclusion, in a great measure, of the latter. We are every day more sensible of their inferiority, and will here endeavour to point out their prominent defects.

As it becomes a matter of great importance to nurserymen that their stock of pot-grown plants should

occupy as small a space as possible, pot-bound specimens are the rule, rather than the exception. And for plants intended to be removed to the open ground as permanent specimens, scarcely a worse condition could exist; it is superlatively bad.

For the purpose of illustration, we will suppose a person to have purchased a plant in the condition above described, and intends immediately to plant it out. On removing the pot he is delighted to find coil upon coil of fine healthy roots. He knows very well that to commit them to their new situation in an uncoiled state will be highly improper, and so, with great care, he proceeds to disentangle them. However careful he may be, the loss of many valuable roots will result, and damage to the remaining will be equally certain. Those in the interior of the ball, from their size and woody texture, will not yield at all, and he closes his half-finished labour, with the conviction that he has seriously damaged his plant. But this mutilation, great as it is, is far preferable to having planted it with its matted roots undisturbed.

A plant which has once been thoroughly pot-bound never gets so firm a hold in the soil as one whose roots have never been confined. Instances are numerous, where valuable specimens, after years of growth, have been blown down in consequence of the very slight manner in which they retained their position. The main roots, when young, had, from pot-culture, acquired a coil-like arrangement, which, during all their subsequent growth, they adhered to—enlarging, but not spreading—increasing in bulk, but contributing little to the

mechanical support of the tree; in fact, they often destroy each other, and in every instance of a plant which in its young state has been subject to the confinement of a pot, these conditions will be evident. Of course new roots strike out, and take a horizontal direction, but they are only of secondary importance, and will ever remain disproportionate to the proper support of the tree. In short, pot-grown plants have many disadvantages without a redeeming quality.

The objections to plants grown in the open ground, supposing them to have been properly managed, have no real weight. They can always be removed at proper seasons for planting, to any distance, without risk of failure from the effects of their removal. Frequent transplanting while in the nursery will have induced the production of numerous healthy roots, ready to commence their important functions the moment favourable opportunities are presented. Accelerated by the stimulus of new soil, growth will be rapid and vigorous. And so far from being injured by removal, great benefits will result. They will at once gain firm hold in the soil, and support will, if required at first, be quickly dispensed with.

It will possibly be expected that we should say something of the comparative value of plants raised respectively from cuttings, seedlings, or grafts. Every purchaser knows that, as a general rule, seedlings are in most cases preferable, and beyond this we can add little that could be absolute. So much depends on the kind of cutting, or graft, or stock, that, where in many instances it would be difficult to decide whether a

given plant were a seedling or not, and which would be of equal value with one, in others of the same species not only would the mode by which they were propagated be at once apparent, but, for the purposes of use or ornament, they would be comparatively worthless.

A small, young, and vigorous tree is always to be preferred to a large stunted one, even though the latter should be ten times the size of the former, as it will in all cases make a finer specimen, and in a much shorter space of time. The stunted one will probably remain in an inactive state for years, or progress but slowly.

Planting.—Much of the ultimate success of a tree will depend on this apparently simple operation being properly performed. The situation chosen, being in regard to soil of a favourable character, a space of at least ten feet in diameter should be trenched for each tree, breaking up the soil from two feet to thirty inches deep, well chopping it to pieces with the spade, and if the lower soil is at all inferior, keeping the surface mould still at the top. A good portion of leaf-mould should also be incorporated with it, and the whole allowed to settle before planting. Where any plant is likely to require support, place in the centre of the spot to receive it a neat strong stake, leaving it, however, no higher than about two-thirds the entire height of the plant. Having carefully disentangled the roots, should they require it, spread them equally over the spot prepared to receive them, with the stem of the plant against the previously

fixed stake. Now, with some prepared compost, fill in amongst and over the roots, adding sufficient to raise it as high as the natural "collar" of the plant. If it is spring, and the weather dry, a good watering should be given previously to placing the final covering of earth over the roots, and the whole should be slightly covered to prevent excessive evaporation. Attention will be requisite to prevent the plant suffering from drought.

We have mentioned that the height of stakes for support, if at all necessary, should not be more than two-thirds that of the plant, because to confine a young tree by strapping it up to the tip of its leader is to retard its growth materially; and for all purposes of support the height recommended is quite sufficient. Many persons very erroneously—because it greatly injures their plants—tie up the leading shoots of their young Deodars to their extreme points. The practice is highly injurious, to say nothing of its destroying the peculiarly graceful character of the tree.

If the soil is of a very inferior description, some additional care will be required in preparing for planting; that at least for the immediate reception of each tree should be wholly removed, and to a depth of at least eight or ten inches below where it has been trenched. Such additional depth must be filled with some rough porous material, as stones or broken bricks, to act as drainage to the soil above, and from which a drain must lead to the nearest convenient outlet. And something—a few sods of turf with the

grassy side downwards are as good as anything—must be placed above the draining materials, to prevent the soil from being carried down and obstructing its action. And in trenching the entire space, it will be requisite to observe that the bottom gradually declines from the outside, to the drainage in the centre, the better to prevent the accumulation of stagnant moisture, a condition which every means should be taken to obviate. In preparing the situations for the trees, whether in adding new soil or otherwise, allowance must be made for subsidence; that the tree, when all is thoroughly settled, shall stand on a slight elevation, but only a slight one. The practice of planting on high mounds is objectionable on many points. Its supposed advantages can be much better secured by drainage.

Where the positions for trees are prepared in a soil naturally retentive of moisture, a thorough system of drainage is altogether indispensable. In the absence of such precautionary measures, each spot would become but a receptacle for water, without the means of allowing it to pass off except by evaporation. The new soil would be reduced to the condition of mud, and the progress of the plants wholly prevented, and death, in some form or other, in many instances ensue.

The following example, one of many which have come under our notice, will possibly convey instructive hints. Early in the autumn of 1849, we supplied a gentleman with a small collection of choice Conifers, for the purpose of decorating his lawn. They were

planted under the purchaser's own directions, and, as he considered, with every necessary care to ensure success. Immediately afterwards, wet weather set in and continued for some weeks. Before Christmas, the foliage and lower branches of many of them had become black, and were in a state of gangrene. Being about this time requested to visit the grounds for the purpose of effecting some improvements, we were, of course, desired to report on the unfavourable aspect of the newly planted firs. A few enquiries, and a little examination, revealed the whole cause of the disaster. The soil of the lawn, with the exception of two or three inches of the surface, was a strong clay. In this, places had been prepared for the plants, and good soil had been supplied, but no provision made for carying off the water. The consequence was, that at the time of our visit each specimen literally stood in mud; for the surface of the new soil, instead of being something above, was an inch or two below the surrounding lawn, where the water after every shower collected in small pools about the plants.

Situations will often occur where drains from the bottom of each prepared position will not be necessary; but few will be found where drainage, to some extent at least, will not prove highly advantageous.

A LIST OF

HARDY CONIFEROUS PLANTS,

WITH THEIR DESCRIPTIONS AND PRINCIPAL SYNONYMS.

ALL the kinds mentioned in this list will endure our climate, though not equally well in every locality. Some are only adapted for favourable situations; while others may be successfully cultivated in any part of the country. The less hardy and spring-tender kinds are indicated in their respective descriptions.

Of the numerous garden varieties the principal ones only are mentioned.

The arrangement adopted is simply alphabetical. To have recognised botanical distinctions would not have added value to the information sought to be conveyed. It is hoped the descriptions given will enable purchasers to select such species as are best adapted for any particular situation, or to produce any effect desired.

The nomenclature is that employed by Dr. Lindley in the "Catalogue of Coniferous Plants," published in the Journal of the Horticultural Society of London for 1850. But we have not thought it necessary to give more synonyms than will suffice for the identification of each species. The many names under which some of them are known have hitherto rendered

their determination a difficult task. The catalogue referred to is especially valuable in removing those difficulties.

ABIES.

ABIES ALBA.—*Michaux.*

(White American Spruce.)

SYN.—*Pinus alba.*—Aiton.
Picea alba.—Link.
Pinus glauca.—Mönch.

This species has a much paler appearance than the common spruce. Nor does it grow so tall, seldom attaining more than fifty feet. It is a native of Canada and New Brunswick, on poor, light, but moist soils. There is a variety, *A. nana*, of much dwarfer habit than the species.

ABIES AJONENSIS.

SYN.—*Picea ajonensis.*—Fischer.

A large tree from the coast of the S.E. of Siberia.

ABIES AMABILIS.—*Lindley.*

(Lovely Silver Fir.)

SYN.—*Picea amabilis.*—Loudon.
Pinus amabilis.—Douglas.

A very tall tree, often two hundred feet high, indigenous to North America. It is quite hardy, and

very beautiful, but seedling plants are rare. Douglas introduced it in 1831.

ABIES BALSAMEA.—*Miller.*

(Balm of Gilead Silver Fir.)

SYN.—*Pinus balsamea.*—Linnæus.
Abies balsamifera.—Michaux.
Picea balsamea.—Loudon.

This tree is found in North America, growing in poor soils, on cold mountain sides. It is very handsome when young, but usually loses its beauty and becomes stunted in this country when about twenty-five or thirty years old, the points of the shoots acquiring an unnatural thickness. This probably arises from its being planted in too rich a soil, choosing naturally such as are of an opposite nature. Its form is a regular pyramid, branches very numerous, which produce many purple cones. Colour of the leaves, dark green above, silvery beneath.

ABIES BRUNONIANA.—*Lindley.*

(Brunon's Fir.)

SYN.—*Pinus dumosa.*—Lambert.
Pinus Brunoniana.—Wallich.
Abies dumosa.—Loudon.

This very handsome fir resembles in habit the Hemlock Spruce, but has larger leaves, of a deep green above, very glaucous beneath. To succeed well it should be planted on a high and dry situation, somewhat sheltered if possible; in low damp places, and where there is not a free circulation of air, it does not

flourish. It is a rapid grower, and will thrive in any ordinary soil. Its native habitat is on the south flanks of Kinchinjunga, the loftiest peak of the Himalayas, or in the world, at elevations between 9000 and 10,000 feet.

ABIES CANADENSIS.—*Michaux.*

(Hemlock Spruce Fir.)

SYN.—*Pinus canadensis.*—Linnæus.

Picea canadensis.—Link.

The beauties of this species are not sufficiently recognised. To enable it to develop its true character, it requires to be planted in cool sheltered situations; in dry and exposed places, or on chalky soils, it never thrives at all; in localities which suit it no tree can be more beautiful. Besides its very ornamental appearance, when grown as a single specimen in the Pinetum, it is peculiarly adapted for ornamenting drives through woods, or for planting for game covers. For the latter purpose it would be especially valuable, as its lower branches become perfectly prostrate, and extend over a large space, affording excellent retreat for game.

As before observed, it delights in cool and moist places, but not where there is stagnant water. Situations which suit the Rhododendron are precisely what is required for the Hemlock Spruce.

It is indigenous to North America, and is abundant about Hudson's Bay. In its native habitats it becomes a tall tree. In this country it is remarkable for the lateral extension of its branches, which is often greater than its entire height.

As it does not transplant well, good rooted specimens should be obtained.

ABIES CEPHALONICA.—*Loudon.*

(Cephalonian Silver Fir.)

SYN.—*Picea cephalonica.*—Loudon.
Pinus cephalonica.—Endlicher.

A very handsome tree fifty or sixty feet high, very wide in proportion. When young it is liable to be injured by spring frosts, but becoming when older much hardier. It should be planted on high dry situations, and such other precautions taken as we have recommended for the spring-tender firs.

ABIES DOUGLASII.—*Lindley.*

(Douglas' Spruce Fir.)

SYN.—*Pinus Douglasii.*—Sabine.
Picea Douglasii.—Link.

A species of great beauty and hardiness, very lofty, and of quick growth. In its native habitats, on the banks of the Columbia river, it is often found two hundred feet in height. Its habit is graceful, and the colour of its foliage a lively green. As an example of the rapidity of its growth in this country, we may mention a specimen at Dropmore, which grew sixty feet in eighteen years. In the gardens of Col. R. Ferguson, M.P., Raith, there is a very handsome variety, fifty feet high, having very glaucous foliage, more beautiful, if possible, than the species.

ABIES EXCELSA.—*De Candolle.*

(Common or Norway Spruce.)

SYN.—*Pinus excelsa.*—Lambert.
Picea excelsa.—Link.

This tree is too well known to need in this place more than a passing notice. There are many varieties of it in cultivation, some remarkable for their beauty, others for their curiosity. The descriptions of a few are subjoined.

A. E.—*var.* Clanbrasiliana.—*Loudon.*

(Lord Clanbrasil's Spruce.)

A low round bush seldom growing more than three or four feet high, and requiring many years to attain even that size.

A. E.—*var.* nana.—*Gardens.*

(Dwarf Spruce.)

SYN.—*A. e. pygmea.*—Loudon.

A very curious variety, of slower growth, and much more dwarf than Clanbrasiliana.

A. E.—*var.* variegata.—*Loudon.*

(Variegated-leaved Norway Spruce.)

Has the foliage blotched with yellowish white. Dwarfer, and of more compact habit than the species.

A. E.—*var.* pendula.

(Weeping Norway Spruce.)

A very handsome tree. Its leaves are longer and

of a darker green than those of the species, and its branchlets hang perpendicularly from the main branches. There is a fine example of this variety near the cascade at Virginia Water.

ABIES FRASERI.—*Lindley.*

(Fraser's Silver Fir.)

SYN.—*Pinus Fraseri.*—Pursh.
Picea Fraseri.—Loudon.

A low scrubby tree, seldom reaching a greater height than ten or twelve feet. It is very hardy, and will be found valuable for planting in many situations where low evergreen growths are required. Its foliage is deep green.

A. F.—*var.* nana.—*Gardens.*

(Hudson's Bay Silver Fir.)

SYN.—*Pinus hudsonica.*—Gardens.

More dwarf than the species, a curious variety.

ABIES GRANDIS.—*Lindley.*

(Great Californian Silver Fir.)

SYN.—*Pinus grandis.* —Douglas.
Picea grandis.—Loudon.

Seedling plants of this fine fir are at present rare. It inhabits the low moist valleys of northern California, where it attains a great height, often two hundred feet. Its foliage is of a beautiful silvery green; and

its cones resemble those of the cedar of Lebanon, but are longer. Like *A. nobilis*, which it much resembles, it requires a rich deep soil. It is perfectly hardy.

ABIES JEZOËNSIS.—*Siebold and Zuccarini.*

(Jezo Spruce.)

This very beautiful tree has been recently introduced from the north of China, where it grows from one hundred to one hundred and twenty feet high. Judging from an imported specimen now growing in our nursery, its habit is very graceful, and its character perfectly distinct. Indeed, Mr. Fortune speaks very highly of its handsome appearance. He states it to be conspicuous for the large quantity of cones which it produces: they are erect, from six to nine inches long, and when young of a bright purple colour, which, contrasting with the lively green foliage, have a very singular and beautiful effect. Its leaves are about an inch and a half long, of a brilliant green on both sides, and are said to remain seven years upon the branches. It is perfectly hardy in this country, and should be in all collections. Unlike most other Conifers, it breaks freely from the old wood, when cut down.

ABIES KHUTROW.—*Royle.*

(Himalayan Spruce.)

Syn.—*Pinus Smithiana.*—Lambert.
Abies Smithiana.—Pinetum Woburnense.

A moderate-sized tree, about fifty feet high; from

the Himalayas. It occurs immediately below *A. Webbiana*, on the northern slopes of the mountains, and usually in large masses.

It is a very graceful tree, of pyramidal shape, the branches, in single plants, being retained to the base of the trunk, with the branchlets beautifully drooping. Like many other of the Himalayan species, it is easily excited in the spring. In planting, attention should be given to the circumstance.

ABIES MENZIESII.—*Lindley.*

(Menzies' Spruce Fir.)

Syn.—*Pinus Menziesii.*—Douglas.

A very handsome tree, of considerable size, found by Douglas, on the north-west coast of America. Foliage vivid green above, very silvery beneath. A very hardy species: it thrives best in a rich, deep soil, but will succeed in almost any situation.

ABIES MORINDA.—*Gardens.*

Syn.—*Pinus morinda.*—Gardens.
Picea morinda.—Link.

This is considered by some as distinct from *A. Khutrow* of Royle, but not so large a tree. It however bears a very strong resemblance to it, and is in a young state perfectly undistinguishable from that species; at least, the kind in general cultivation under that name is so. If distinct, it is equally liable to suffer from spring frosts, and requires a like treatment with *A. Khutrow.*

ABIES NIGRA.—*Michaux.*

(Black Spruce.)

SYN.—*Abies mariana.*—Miller.
Pinus nigra.—Aiton.

A native of the colder regions of North America. Height eighty or ninety feet, with a slender trunk. Branches horizontal and spreading; foliage very dark and sombre; naturally inhabits damp soils. From this species is made the beverage called spruce beer.

ABIES NORDMANNIANA.—*Spach.*

(Nordman's Silver Fir.)

SYN.—*Pinus Nordmanniana.*—Steven.
Picea Nordmanniana.—Loudon.

From the mountains of the Crimea, where it forms a handsome spreading tree eighty or one hundred feet high. It is perfectly hardy and should be in all collections. Colour of the leaves, palish green above, glaucous beneath.

ABIES NOBILIS.—*Lindley.*

(Noble Silver Fir.)

SYN.—*Pinus nobilis.*—Douglas.
Picea nobilis.—Loudon.

A very noble tree, found in vast forests on the mountains of North California, where it grows to a great height. It is of very distinct character. Its leaves have the appearance of being placed only on one side of the branch, each leaf curving upwards.

The branches are remarkable for their dense foliage, and perfectly flat surface. They spread horizontally from the trunk, and have the branchlets and leaves so thickly and uniformly placed as to present a surface almost as level as the pile of a Turkey carpet. It succeeds best in a rich deep loam, but suffers in some localities from late spring frosts, the remedy for which we have pointed out.

ABIES OBOVATA.—*Loudon.*

SYN.—*Picea obovata.*—Ledebour.
Pinus obovata.—Ledebour.

A tall handsome tree, with the habit of the silver fir. A native of Siberia.

ABIES ORIENTALIS.—*Poiret.*

(Oriental Spruce Fir.)

SYN.—*Pinus orientalis.*—Linnæus.

A tall tree, indigenous to the shores of the Black Sea. It resembles the common spruce fir, but has paler and shorter leaves.

ABIES PINSAPO.—*Boissier.*

(Pinsapo Silver Fir.)

SYN.—*Pinus Pinsapo.*—Boissier.
Picea Pinsapo.—Loudon.

A very beautiful tree—perhaps the most beautiful of the genus—indigenous to the mountains of Grenada, where it grows sixty or seventy feet high. The stem is clothed with very stiff branches from the base,

which, with the branchlets, are very symmetrically placed, giving the tree a singular appearance. For planting singly on lawns it has no rival. It bears a considerable resemblance to *A. Cephalonica*, but is much more branched, and its foliage is of a livelier green. It is very hardy, transplants well at almost any season, and bears the smoke and impure atmosphere of the neighbourhood of towns better than any other Pine. To succeed well it should have a deep rich soil.

ABIES PICHTA.

(Pitch Silver Fir.)

SYN.—*Pinus Pichta.*—Fischer.
Picea Pichta.—Loudon.

This species much resembles the common silver fir, but is distinguishable by its more closely set and narrow leaves, which are but slightly silvery beneath. It is a tall handsome tree, with bright green foliage. Branches, at first horizontal, afterwards somewhat drooping. A native of the Atlas Mountains. Liable to be damaged by spring frosts.

ABIES PICEA.—*Lindley.*

(Common Silver Fir.)

SYN.—*Pinus picea.*—Linnæus.
P. pectinata.—Lamarck.
Abies pectinata.—De Candolle.
Picea pectinata.—Loudon.

A very noble and beautiful tree, well known to all. It succeeds in a variety of soils, attaining in favourable situations a height of from one hundred and twenty to

one hundred and thirty feet. Indigenous to the mountain ranges of Central Europe, from the Pyrenees to the Caucasus. Its deep green foliage, pyramidal shape, and rapid growth, are points which highly recommend it. It often suffers from spring frosts.

ABIES PINDROW.—*Spach.*

(Tooth-leaved Silver Fir.)

SYN.—*Picea Pindrow.*—Loudon.
Pinus Pindrow.—Royle.

A large tree, eighty to one hundred feet high, inhabiting the Himalayas at elevations from 8000 to 10,000 feet. It bears a strong resemblance to *A. Webbiana*, with which species it is often confounded. Its foliage is however larger, and the cones more ovate; but like those of *Webbiana* in colour, being of the richest purple. The leaves, too, are narrower, and scarcely glaucous in *Pindrow*, but very much so in *Webbiana*. As both species are spring tender, they should be planted on dry elevated situations, and the precautions recommended in the treatise for obviating the effects of frost adopted.

ABIES RUBRA.—*Poiret.*

(Red Spruce.)

SYN.—*Pinus rubra.*—Lambert.
Picea rubra.—Link.

A low tree, indigenous to Nova Scotia and Newfoundland. Height about thirty feet. It does not differ materially from *A. nigra*, being considered by some as a dwarf variety of it. In rich soils it approaches the latter in size.

ABIES RELIGIOSA.—*Lindley.*

(Mexican Silver Fir.)

SYN.—*Pinus religiosa.*—Humboldt.
Picea religiosa.—Loudon.

Although this handsome species is not perhaps thoroughly hardy in the northern parts of the country, we believe it to be more so than is generally supposed. Naturally it is of a very luxurious habit, and if planted in rich warm soils, has a strong tendency to grow early in the spring, as well as to continue to do so late in the autumn. The consequences of this in our climate are obvious. It should be planted in a somewhat poor dry soil, in a situation by no means favoured with shelter, to induce it to remain inert in the early spring, as well as to hasten the maturation of its wood as the summer advances, and to get it perfectly ripened before the damp short days of autumn arrive. The situations where it will be advisable to plant it are of course limited. It is a native of the mountains of Mexico, at an elevation of about 9000 feet, where it grows one hundred and fifty feet high.

ABIES WEBBIANA.—*Lindley.*

(Webb's Purple-coned Silver Fir.)

SYN.—*Pinus spectabilis.*—Lambert.
P. tinctoria.—Wallich.
P. Webbiana.—Wallich.
Abies spectabilis.—Spach.
Picea Webbiana.—Loudon.
Abies densa.—Griffith.

A tree eighty or ninety feet high, inhabiting the

Himalayas, immediately above the habitats of *A. Pindrow*, to which, as we observed when describing that species, it bears a strong resemblance. Branches spreading, very stout, and horizontally disposed. Leaves shorter, broader, and of a darker green than *A. Pindrow*, very glaucous beneath. Its cones, too, are longer and narrower than those of *Pindrow*. But in either species they are very beautiful, being of a rich deep purple or violet colour. Like many other Himalayan firs, this species is spring tender.

CEDARS.

ABIES ATLANTICA.

(Mount Atlas Cedar.)

Syn.—*Cedrus atlantica.*—Manetti.
Pinus atlantica.—Endlicher.
Cedrus argentea.—Gardens.
Cedrus africana.—Gardens.
Cedrus elegans.—Gardens.

Is much larger than the cedar of Lebanon, to which it bears a strong general resemblance. It is, however, more rapid in growth, and has foliage of a beautiful silvery hue.

ABIES CEDRUS.—*Poiret.*

(Cedar of Lebanon.)

Syn.—*Cedrus Libani.*—Barrelier.
Pinus Cedrus.—Linnæus.

We need not attempt to describe this well-known

tree. It is much more abundant in this country than in its native habitats, Mount Taurus and Mount Lebanon. Some of the first introduced plants are still growing in the Botanic Gardens at Chelsea. They were planted in 1683.

A. C.—*var.* argentea.—*Gardens.*

Differs from the species in having very glaucous foliage, which renders it very handsome. There is a fine example of this variety in the grounds of — Williams, Esq., "The Temple," near Marlow.

ABIES DEODARA.—*Lindley.*

(Deodar or Indian Cedar.)

SYN.—*Cedrus Deodara.*—Loudon.

Any eulogium on the beauties of this well-known species would be superfluous. It is a native of the western Himalayas, where it grows one hundred and fifty feet high, with a trunk eight or ten feet in diameter. The peculiar gracefulness of its young state is well known. When old it is said to acquire a flat head, like the cedar of Lebanon, and with a clean taper trunk.

A. D.—*var.* robusta.—*Gardens.*

In every way more robust than the species. Its leaves, too, are much longer. A distinct and handsome variety.

A. D.—*var.* viridis.—*Gardens.*

Has not the glaucous hue of the species, its foliage being of a bright pale green.

LARCHES.

ABIES GRIFFITHIANA.—*J. Hooker.*

(Sikkim Larch.)

A tree fifty or sixty feet high, of which little is known at present, it having been but recently introduced.

ABIES LARIX.—*Lamarck.*

(Common Larch.)

SYN.—*Pinus Larix.*—Linnæus.
Larix europæa.—De Candolle.
Larix vulgaris.—Fischer.

This well-known tree needs no description. When standing alone, and allowed to spread its branches, it is highly ornamental. Its young pale green foliage is very beautiful; no tree can surpass it in delicacy and beauty.

A. L.—*var.* pendula.

(Weeping European Larch.)

Has larger foliage than the Weeping American Larch, and its branches are almost as pendulous. Distinct and handsome.

ABIES MICROCARPA.

(Small-coned American Larch.)

SYN.—*Pinus Larix rubra.*—Marsh.
Larix microcarpa.—Poiret.
Pinus microcarpa.—Lambert.
Larix tenuifolia.—Salisbury.

Found in America forming large forests, where it

often reaches a height of one hundred feet. As a timber tree, it is inferior to the European species, nor is it superior in an ornamental point of view.

A. M.—*var.* pendula.—*Gardens.*

(Weeping Small-coned American Larch.)

More attractive than the Weeping variety of the European species.

ABIES PENDULA.

(Weeping American Larch.)

SYN.—*Larix pendula.*—Salisbury.
Pinus pendula.—Solander.

A weeping tree, indigenous to North America. It has but few branches, and those long and pendulous. Foliage of a deeper colour than that of the common European species, and its leaves are longer. A very distinct kind.

ARAUCARIA.—*Jussieu.*

ARAUCARIA BRAZILIENSIS.—*A. Richard.*

(Brazil Araucaria.)

SYN.—*Columbea angustifolia.*—Bertoleni.
Araucaria Ridolfiana.—Savi.

Resembles much, both in general appearance and in size, *A. imbricata*, but is more loose and spreading in habit. It is generally considered too tender for outdoor cultivation in this country, but it has proved quite hardy in many localities, especially in the south

and south-west counties. Such particulars as we have been able to collect relative to its hardiness are of a very contradictory nature; but as it is said there is a variety in cultivation, which is much hardier than the species, these apparently contradictory statements may in a measure be reconciled. The variety alluded to is *A. b. Ridolfiana*, which we here place as synonymous with the species; and we shall be happy to receive such information as will enable us to determine whether such is a variety, and if it is hardier or not.

ARAUCARIA IMBRICATA.—*Pavon.*

(Chili Pine.)

SYN.—*Dombeya chilensis.*—Lambert.
Araucaria chilensis.—Mirbel.

This very noble tree is now well known, and its attractions appreciated by all. It is indigenous to the mountains of Chili, where it is sometimes found growing one hundred and fifty feet high; but in very elevated and exposed situations it is only a dwarf tree, spreading its branches laterally rather than increasing in height. When young, its trunk is clothed with whorls of branches from the ground, but in old trees it is said to become naked* for three-fourths of its height. Its deep green colour, highly ornamental and unique

* The fact that many trees lose their lower branches, when crowded by others, as they generally are in their native forests, must not be always considered as a natural characteristic. It arises almost exclusively from want of light; and when the same kinds of trees are allowed to develope themselves, unmolested by others, they retain their branches to the ground, a fact of great importance where ornament alone is the object sought.

appearance, combine to render it the most attractive of hardy trees.

BIOTA.—*Don.*

BIOTA ORIENTALIS.—*Endlicher.*

(Chinese Arbor Vitæ.)

SYN.—*Thuia orientalis.*—Linnæus.
Thuia acuta.—Mönch.

Differs from the American Arbor Vitæ, in its branches becoming almost vertical when old, and by its foliage being of a brighter green. Of this species there are many varieties, one or two of which we subjoin descriptions of. They thrive best on strong loamy or clayey soils. In those of a light sandy nature they do not succeed well. A native of China and Japan.

B. o.—*var.* aurea.—*Gardens.*

A dwarf, compact, and very handsome variety. It is particularly attractive from its young shoots being of a golden colour when first appearing, but changing afterwards to the darker green of the older foliage.

B. o.—*var.* compacta.—*Gardens.*

Resembles *aurea* in general habit, but its foliage is of a deeper green, and its young shoots have not the golden hue peculiar to that variety. It is also hardier.

BIOTA PENDULA.—*Endlicher.*

(Weeping Arbor Vitæ.)

SYN.—*Cupressus pendula.*—Thunberg.
Thuia pendula.—Lambert.
Cupressus filiformis.—Gardens.
Thuia filiformis.—Loddiges.

A graceful shrub, indigenous to China and Japan. Its branches, which are long, slender, and cord-like, weep in a very graceful manner. Foliage a light green. Height ten to fifteen feet.

BIOTA STRICTA.

(Erect-growing Arbor Vitæ.)

Thuia stricta.—Gardens.

A tall, narrow, fastigiate tree, of distinct character, indigenous to North America.

BIOTA TATARICA.

(Tartarian Arbor Vitæ.)

SYN.—*Thuia nepalensis.*—Gardens.
Thuia tatarica.—Gardens.

A tree of less compact habit than *B. orientalis*, and of quicker growth.

CEPHALOTAXUS.—*Siebold and Zuccarini.*

CEPHALOTAXUS FORTUNI.—*Hooker.*

(The Male.)

Recently introduced from the north of China, and

is much superior to *C. pedunculata*, both in habit and foliage; for while the latter—at least in all the plants we have seen—is of irregular growth, never forming a decided leader, *C. Fortuni*, whether from a seed or cutting, invariably produces a strong leading shoot, and is regularly and symmetrically furnished with branches. And of its hardiness there is no doubt. During the late severe frosts and drying winds, when the leaves of very many hardy evergreens were much damaged by losing their crispness and colour, it was as wholly unaffected as the *Araucaria imbricata*. The foliage of this species, too, is very fine, and of a rich deep green, the leaves averaging three inches long; they are arranged upon the branches in two parallel opposite rows. In vigorous plants the branchlets will often measure nearly seven inches across. Its very noble appearance and distinct character will command a place in all collections of hardy ornamental trees. It grows in China from thirty to fifty feet high.

(The Female.)

Has the leaves shorter, narrower, and more closely set than the male. The branches, too, are more rigid and erect, and the colour of the foliage a paler green. Handsome and distinct.

CEPHALOTAXUS PEDUNCULATA.—*Siebold and Zuccarini.*

(Lord Harrington's Yew.)

Syn. *Taxus Harringtonii.*—Gardens.

A spreading tree, with handsome foliage resembling

C. Fortuni, but smaller; and, unlike that species, does not form a leading shoot, but spreads its branches irregularly over the ground. Whether plants raised from seeds would assume a different habit we cannot say, as none but plants from cuttings, that we are aware of, are in cultivation. It is perfectly hardy.

CHAMÆCYPARIS.—*Spach.*

(White Cedars.)

CHAMÆCYPARIS SPHÆROIDEA.—*Spach.*

(White Cedar.)

SYN.—*Cupressus thyoides.*—Linnæus.
Thuia sphæroidalis.—A. Richard.

From N. W. America, where it occurs a sa medium-sized tree, growing in immense masses in the swamps and low lands on the coast, which are often overflowed by the sea. It might be advantageously employed in similar situations in this country, as it is very hardy. It also succeeds well in deep sandy soils. There are many garden varieties, differing much in habit and colour of foliage. Some have a spreading habit and are dwarf, while others are tall and compact. It is a very handsome tree, and deserves to be more generally known and planted.

CRYPTOMERIA.—*Don.*

CRYPTOMERIA JAPONICA.—*Don.*

(Japan Cedar.)

SYN.—*Cupressus japonica.*—Linnæus.
Taxodium japonicum.—Brongniart.

A very lofty and magnificent tree, introduced from China, where it forms immense forests. In its native habitats it affects damp soils, in mountainous districts, growing eighty to one hundred feet high, with a very straight trunk. Its general form is pyramidal, with erect branches, the branchlets drooping. In this country it grows very rapidly, and is quite hardy. To succeed well, it should be planted in a rich, deep, moist soil, in a sheltered situation. In poor dry places it becomes stunted in appearance, and brown in foliage.

C. J.—*var.* nana,—*Gardens.*

(Dwarf Japan Cedar.)

A dwarf dense bush. A curious variety.

C. J.—*var.* viridis.—*Gardens.*

(Vivid-green Japan Cedar.)

Conspicuous for its very bright pale green foliage, which does not change during winter. In habit it does not differ from the species, but its lively green foliage renders it more attractive in winter, and it appears to be hardier.

CUNNINGHAMIA.—*R. Brown.*

CUNNINGHAMIA SINENSIS,—*R. Brown.*

(Chinese Cunninghamia.)

SYN.—*Pinus lanceolata.*—Lambert.
Araucaria lanceolata.—Gardens.

Indigenous to China and Japan, bearing a striking resemblance to *Araucaria braziliensis*. Although it is quite hardy in this country, it is not an attractive plant when young, its foliage generally assuming a brown tint then, but as it becomes older this is not perceptible, and its appearance is very ornamental. There is a fine specimen, twenty-eight feet high, in the grounds at Bagshot Park. In China it grows eighty feet high.

CUPRESSUS.—*Tournefort.*

(Cypresses.)

CUPRESSUS FUNEBRIS.—*Endlicher.*

(Funebral or Weeping Cypress.)

SYN.—*Cupressus pendula.*—Staunton.

Everyday experience confirms the high opinions formed of the hardiness and great beauty of this tree. As a graceful weeping evergreen, it has no rival; but it does not assume its weeping character in a young state. In its native country, China, it is not perceptible till it has attained a height of eight or ten feet. From its peculiar and graceful habit it stands conspicuous amongst its associates. The description

given by Mr. Fortune, and which accompanied it on its introduction to this country, will convey a more perfect idea of its general character than anything we could say of it. He describes it as "a noble-looking fir tree, about sixty feet high, with a stem as straight as the Norfolk Island Pine, and pendulous branches like the weeping willow. The branches grow at first horizontally with the main stem, then describe a graceful curve upwards, drooping again at the points. From these main branches others long and slender hang down towards the ground, and give the whole tree a weeping and graceful character."

CUPRESSUS GOVENIANA.—*Gordon.*

(Gowen's Cypress.)

A bush ten or twelve feet high on its native hills in California, but, if we may judge by the progress which it makes with us, it will attain a much greater height in this country. Branches numerous, horizontal or somewhat spreading, covered with bright green foliage, which emits, when pressed, a very fragrant odour. A highly ornamental species.

CUPRESSUS GLAUCA.—*Lamarck.*

(Cedar of Goa.)

Syn.—*Cupressus lusitanica.*—Miller.
Cupressus pendula.—L'Heritier.

A tree fifty feet high, with many spreading flexuose branches, the branchlets somewhat pendulous. A native of Hindostan. Not very hardy in this country,

but succeeds in the South of England, and a few other favourable localities.

CUPRESSUS HORIZONTALIS.—*Miller.*

(Spreading Evergreen Cypress.)

SYN.—*Cupressus expansa.*—Gardens.
Cupressus orientalis.—Gardens.
Cupressus Tournefortii.—Audibert.

A moderate-sized tree, indigenous to the shores of the Mediterranean. It much resembles *Cupressus sempervirens* of Miller. Grows very rapidly, especially when young.

CUPRESSUS MACROCARPA.—*Hartweg.*

(Large-coned Cypress.)

SYN.—*Cupressus Lambertiana.*—Gardens.

A handsome tree, indigenous to California, where it grows fifty or sixty feet high. When young, it is clothed with branches from the base; but as it approaches maturity, assumes a flat head, similar to the cedar of Lebanon. Foliage a beautiful lively green. Grows very rapidly. For planting in poor soils and exposed situations it is invaluable, thriving well where few others will succeed at all. Amongst a number of Conifers planted upon a very exposed sandy common for an experiment, by R. Winn, Esq., near Brigg, Lincolnshire, this and *Pinus excelsa* are the only kinds wholly unaffected by the situation. Both are conspicuous for their healthy appearance, scarcely another making satisfactory progress.

CUPRESSUS SEMPERVIRENS.—*Miller.*

(Upright Evergreen Cypress.)

SYN.—*Cupressus fastigiata.*—De Candolle.
Cupressus pyramidalis.—Targioni Tozzetti.

From Greece and Asia Minor. Height thirty or forty feet. Form conical, the branches being almost parallel with the stem. Habit compact. Colour deep sombre green. Liable to suffer from spring frosts.

CUPRESSUS THURIFERA.—*Lindley.*

SYN.—*Cupressus Benthami.*—Endlicher.
Cupressus Coulteri.—Pinetum Woburnense.
Cupressus Lindleyi.—Klotzsch.

A hardy Mexican species, attaining the size of a tree.

C. T.—*var.* elegans.—*Gardens.*

A more robust tree than the species. Very beautiful and distinct.

CUPRESSUS TORULOSA.—*Don.*

(Bhotan or Twisted Cypress.)

Indigenous to Bhotan and Nepal. Habit very graceful. Form a slender pyramid. Height about forty feet. Foliage pale green, somewhat glaucous. As it is easily excited into growth in spring, the precautions necessary for other spring tender plants must be attended to in planting it.

CUPRESSUS UDHEANA.—*Gordon.*

(Udhe's Cypress.)

A Mexican species of arborescent character. Resembles *C. thurifera.*

FITZ-ROYA.

FITZ-ROYA PATAGONICA.—*J. D. Hooker.*

Newly introduced from Patagonia. An evergreen coniferous shrub, with gracefully drooping branches, much resembling *Libocedrus tetragona*, especially old plants.

GLYPTOSTROBUS.—*Endlicher.*

GLYPTOSTROBUS HETEROPHYLLUS.—*Endlicher.*

(Chinese Glyptostrobus.)

Syn.—*Taxus nucifera.*—Gardens.
Cupressus nucifera.—Gardens.
Schubertia nucifera.—Denhardt.
Taxodium heterophyllum.—Brongniart.
Cupressus sinensis.—Gardens.

A small erect tree, a native of China. Very handsome, and of rapid growth.

GLYPTOSTROBUS PENDULUS.—*Endlicher.*

(Weeping Chinese Glyptostrobus.)

SYN.—*Taxodium sinense pendulum.*—Poiret.
Taxodium sinense.—Pinetum Woburnense.

In general appearance it resembles *Taxodium distichum*, but is much smaller, and differs in having pendulous branches. A very interesting plant. Indigenous to China.

JUNIPERUS.—*Linnæus.*

(Junipers.)

JUNIPERUS BERMUDIANA.—*Linnæus.*

(Bermudas Cedar.)

SYN.—*Juniperus oppositifolia.*—Mönch.

Found in the island of Bermudas. It is not sufficiently hardy for Scotland and the north of England, except in favourable localities near the coast, but succeeds well, and is a handsome species, in the south and west counties. In its native habitats it is a tall tree.

JUNIPERUS BEDFORDIANA.—*Gardens.*

SYN.—*Juniperus gossainthanea.*—Loddiges.

This is considered by some to be only a variety of the Red Cedar, and not so hardy; but it does not get injured except in severe winters, or in unfavourable situations. Its branches are more slender, and its general appearance less compact. A very handsome tree.

JUNIPERUS CHINENSIS.—*Linnæus.*

(Chinese Juniper.)

(The Male.)

SYN.—*Juniperus Thunbergii.*—Hooker.
Juniperus nepalensis.—Gardens.

A handsome shrub or tree, of compact habit, growing twenty or thirty feet high. Very attractive in the early spring, when in flower.

(The Female.)

SYN.—*Juniperus Reevesiana.*—Gardens.
Juniperus flagelliformis.—Gardens.

Of more slender growth than the male, and not so tall; but still a very handsome plant.

JUNIPERUS COMMUNIS.—*Linnæus.*

(Common Juniper.)

Loudon, in his Arboretum, tells us that this shrub seldom grows higher than three or four feet, but such is only applicable to it when growing on the most exposed and barren downs. For such situations it is an invaluable plant, as it will succeed on cold chalky hills where scarcely any other shrub will grow. In sheltered places it attains a height of sixteen or eighteen feet, and takes no mean rank amongst ornamental plants. It is indigenous to the whole of northern Europe and part of Asia. Besides the varieties named below, there are numerous others in cultivation, some of which are very beautiful. One deserves particular

mention, from its graceful weeping habit. It is known as *J. c. pendula.*

J. c.—*var.* vulgaris.

SYN.—*Juniperus cracovia.*—Loddiges.
Juniperus taurica.—Gardens.

The branches in this variety are very much more spreading than in the species.

J. c.—*var.* caucasica.

(Weeping Common Juniper.)

SYN.—*Juniperus oblonga.*—Bieberstein.
Juniperus oblonga pendula.—Gardens.

This beautiful plant is one of the most attractive of Junipers, especially in the spring, when covered with its young, pale-green branchlets, which droop perpendicularly from the branches, and contrasts beautifully with the darker green of the older foliage. Mr. Fortune tells us he saw specimens of it in China fifty feet high, than which no trees could be more beautiful. Said to be indigenous to the mountains of Russia. It is of a conical form, the lower branches resting upon the ground, and the leading shoot drooping like the Deodar. Very hardy.

J. c.—*var.* arborescens.

(Upright or Irish Juniper.)

SYN.—*Juniperus stricta.*—Gardens.
Juniperus suecia.—Miller.
Juniperus hibernica.—Loddiges.

An erect bush, assuming a cylindrical rather than a pyramidal form, increasing in height without materially

adding to its diameter. It is the most formal of all the Junipers. There is a specimen at Bagshot Park twenty-six feet high.

JUNIPERUS EXCELSA.—*Bieberstein.*

(Lofty Juniper.)

In favourable localities this species assumes the appearance of a tree. On high exposed places it becomes a shrub. It occurs over a wide range of country, being found in the Levant, Asia Minor, and Arabia, and on the Himalayas. It is very ornamental, and very distinct. There is a handsome variety with a more compact habit than the species, and not so tall. Both are perfectly hardy.

JUNIPERUS FŒTIDISSIMA.—*Willdenow.*

(Frankincense Juniper.)

SYN.—*Juniperus hispanica.*—Miller.
Juniperus thurifera.—Gardens.
Juniperus excelsa.—Pinetum Woburnense.

This is a very handsome species, of a pyramidal form, and of somewhat close habit. Height twenty-five to thirty feet. A native of Spain and Portugal.

JUNIPERUS FLACCIDA.—*Schlecht.*

(Flagging Juniper.)

From the mountains of Mexico, at elevations immediately below *J. Mexicana*, of *Schlecht.* In habit it is

somewhat loose, with drooping branches. It is quick-growing, and of graceful appearance. Foliage pale-green. Grows to the size of a tree. Not very hardy.

JUNIPERUS MACROCARPA.—*Sibthorp.*

(Large-fruited Juniper.)

SYN.—*Juniperus oblongata.*—Gussone.
Juniperus Lobelii.—Gussone.

A large shrub, inhabiting sandy places in Greece, Sicily, and Austria. It is a very distinct and handsome species, with large pale glaucous leaves.

JUNIPERUS MEXICANA.—*Schlecht.*

(Mexican Juniper.)

SYN.—*Juniperus Deppeana.*—Steudel.
Juniperus Sabinoides.—Humboldt.

Inhabiting the mountains of Mexico, at elevations from 8000 to 10,000 feet. A pyramidal-shaped tree, not very hardy.

JUNIPERUS NANA.—*Willdenow.*

(Dwarf Juniper.)

SYN.—*Juniperus dealbata.*—Douglas.
Juniperus saxatilis.—Gardens.
Juniperus montana.—Ibid.
Juniperus sibirica.—Pinetum Woburnense.
Juniperus canadensis.—Loddiges.

A low shrub, indigenous to the mountains of northern Europe, Asia, and North America. Well adapted for planting on cold barren hill-sides.

JUNIPERUS OCCIDENTALIS.—*Hooker.*

(Western Juniper.)

SYN.—*Juniperus excelsa.*—Lewis and Clark.

A large tree, inhabiting the banks of the Columbia river, where it is often found seventy or eighty feet high.

JUNIPERUS OXYCEDRUS.—*Linnæus.*

(Brown-berried Juniper.)

SYN.—*Juniperus macrocarpa.*—Tenore.
Juniperus Wittmanniana.—Fischer.
Juniperus Oxycedrus taurica.—Gardens.

A shrub eight or ten feet high, branching to the ground. Indigenous to sandy districts on the shores of the Mediterranean. Branches long and taper, bearing large brown berries. A handsome species.

JUNIPERUS PHŒNICEA.—*Linnæus.*

(Phœnician Juniper.)

A pyramidal shrub or small tree, with slender weeping branches, inhabiting the shores of the Mediterranean. A very handsome species.

J. P.—*var.* malacocarpa.

(Lycian Juniper.)

SYN.—*Juniper Lycia.*—Linnæus.

Of much more compact habit than the species.

JUNIPERUS PROSTRATA.—*Persoon.*

(Prostrate Juniper.)

SYN.—*Juniperus repens.*—Nuttall.
Juniperus hudsonica.—Loddiges.

A trailing shrub, well adapted for planting amongst rock-work. It is indigenous to the hills and sandy coasts of North America.

JUNIPERUS RECURVA.—*Hamilton.*

(Recurved or Nepal Juniper.)

SYN.—*Juniperus incurva.*—Herbert Hamilton.

From the alps of Nepal and Cashmere. It is a graceful shrub, of a pendulous or recurved habit. Foliage dark green, with a dull greyish bloom. It requires a richer and lighter soil than most of its congeners to succeed well. In poor soils it has a shabby brown appearance, but when in a luxuriant condition is very handsome.

JUNIPERUS RELIGIOSA.—*Royle.*

(Sacred Juniper.)

A Himalayan species, with beautiful glaucous foliage, somewhat resembling *J. excelsa.* It has stiff erect-growing branches, with the branchlets somewhat recurved at the points. Very handsome, but is often damaged by spring frosts.

JUNIPERUS SABINOIDES.—*Grisebach.*

(Savin-like Juniper.)

SYN.—*Juniperus Sabina tamaricifolia.*—Aiton.
Juniperus turbinata.—Gussone.

Very handsome, resembling *J. Sabina*, but not so tall, and with foliage of a more cheerful green. It is the handsomest of the dwarf prostrate junipers, and superior to any other for covering banks, or associating with rock-work. Indigenous on the mountains of the south of Europe.

JUNIPERUS SABINA.—*Linnæus.*

(Common Savin.)

SYN.—*Juniperus horizontalis.*—Mönch.

A low spreading bush, indigenous to the mountains of northern Europe and North America. In favourable localities and good soils it assumes an arborescent character; but becomes dwarf and prostrate in very poor ones. It is useful for planting in any situation where low evergreen growths are required.

JUNIPERUS SQUAMATA.—*Don.*

(Scaly Nepal Juniper.)

SYN.—*Juniperus squamosa.*—Herbert Hamilton.
Juniperus dumosa.—Gardens.
Juniperus rigida.—Wallich.

A low half-trailing shrub, from the alps of Bhotan and Nepal, at elevations from 9000 to 11,000 feet.

Foliage of a beautiful dark green. As its natural habit is prostrate, it should not be forced into an erect position by being tied up. This is often done, and the beauty of the plant is much damaged by the practice.

JUNIPERUS SPHÆRICA.—*Lindley.*

(Globular-fruited Juniper.)

Lately introduced from the north of China, where it forms a very handsome tree from thirty to fifty feet high. It is very distinct and perfectly hardy.

JUNIPERUS TETRAGONA.—*Schlecht.*

(Tetragonal Mexican Juniper.)

A tall shrub, found at low elevations on the mountains of Mexico. It is a very handsome species, but not very hardy.

JUNIPERUS VIRGINIANA.—*Linnæus.*

(Red Cedar.)

Syn.—*Juniperus barbadensis.*—Linnæus.
Juniperus caroliniana.—Gardens.
Juniperus arborescens.—Mönch.

Of this handsome tree there are many varieties, which vary much, both in habit and colour of foliage. Some are low and spreading; others tall and compact, with foliage varying from a deep green to a beautiful

glaucous hue. In North America, and in favourable localities in this country, it forms a tree fifty or sixty feet high, much branched from the base of the trunk. It is, however, seldom allowed to develope its true character in our gardens, as it is usually placed in the shrubbery with other plants, where it loses the greater part of its lower branches. It should be planted in situations free from the encroachments of surrounding trees.

J. v.—*var.* pendula.—*Gardens.*

(Weeping Red Cedar.)

Somewhat more spare of branches than the species, and with pendulous branchlets.

J. v.—*var.* glauca.—*Gardens.*

(Glaucous-leaved Red Cedar.)

A very handsome variety, with beautiful glaucous foliage.

J. v.—*var.* argentea.

(Silver-leaved Red Cedar.)

Has foliage with a bright silvery hue, and is more compact in habit and cylindrical in form than the species.

LIBOCEDRUS.—*Endlicher.*

(Libocedars.)

LIBOCEDRUS CHILENSIS.—*Endlicher.*

SYN.—*Thuia chilensis.*—Don.

A very handsome tree, recently introduced from the mountains of southern Chili. It occurs in the same latitude with *Araucaria imbricata*, and will no doubt prove as hardy in this country. It is said to resemble a cypress in habit, but with drooping branchlets and shining green foliage; but from what we can judge of our young plants, that description does not convey a correct idea of its appearance. Both in its foliage and peculiarly flattened branchlets and branches, it bears a striking resemblance to *Araucaria excelsa*, but is not so slender in form, being more bluntly conical in general outline. It certainly is very distinct from any other tree we are acquainted with.

LIBOCEDRUS TETRAGONA.—*Endlicher.*

SYN.—*Juniperus uvifera.*—Don.
Thuia tetragona.—Hooker.

This magnificent tree is a native of the cold southern regions of South America, immediately below the snow line of the Andes of Patagonia, where it occurs as a tree from fifty to eighty feet high. Dr. Lindley, in his description of it in "Paxton's Flower Garden," says, "This tree promises to be a rival of *Araucaria imbricata*, and to be as hardy." Any other allusion to its merits would be superfluous.

PINUS.

PINUS APULCENSIS.—*Lindley.*

(Apulco Pine.)

SYN.—*Pinus acapulcensis.*—Gardens.

A native of Apulco in Mexico, growing fifty feet high, with glaucous foliage, especially on the young shoots. Leaves about six inches long, slender, and very graceful. A handsome and distinct species.

PINUS AUSTRIACA.—*Höess.*

(Black Austrian Pine.)

SYN.—*Pinus nigricans.*—Gardens.
Pinus nigra.—Link.

Indigenous to Lower Austria, Transylvania, Carinthia, and Styria. A lofty tree, of rapid growth, resembling *Pinus Laricio.* It delights in a deep dry soil, but will succeed in any ordinary situation. Branches remotely verticillate, somewhat drooping. In old trees they form a flat spreading head. Leaves four or five inches long, of a dark glossy green. A very valuable tree for exposed situations.

PINUS AUSTRALIS.—*Michaux.*

(Southern Pine.)

SYN.—*Pinus palustris.*—Miller.

In the southern parts of the kingdom, and in other favoured localities, this beautiful pine is quite hardy,

and would probably prove so in many other places if the prevailing opinion did not declare it too tender, and prevent it from being more extensively planted. It is found in America as far north as 40° lat., although not generally indigenous there. About Florida and Virginia it occurs plentifully on dry barren soils near the sea, where it grows seventy feet high, with a beautifully straight trunk. Its foliage is very slender, of a rich green, collected in tufts at the extremities of the branches.

PINUS AYACAHUITE.—*C. Ehrenberg.*

(Ayacahuite Pine.)

Inhabits the mountains of Mexico, in the provinces of Chiapa and Oxaca, where it grows one hundred feet high. The leaves are about four inches long, and, when young, of a very pale or whitish colour. Cones often a foot long.

PINUS BANKSIANA.—*Lambert.*

(Banks' or Scrub Pine.)

Syn.—*Pinus hudsonica.*—Lamarck.
Pinus rupestris.—Michaux.
Pinus contorta.—Douglas.

More interesting from its associations than from its appearance. Its branches are long and thin, and but few in number, giving the tree a spare appearance. It occurs abundantly about the coast of North America in high latitudes. Thrives well in deep sandy soils, and grows forty to fifty feet high. The young shoots emit a very pleasant odour.

PINUS BENTHAMIANA.—*Hartweg.*

(Bentham's Pine.)

SYN.—*Pinus Sinclairii.*—Hooker.

This very noble tree should be in every collection. It is a native of the mountains of Santa Cruz in California, at a greater elevation than *Pinus Sibiniana.* Its form is irregular and picturesque. Height about two hundred feet. Leaves ten to twelve inches long, numerous, dark green, thickly clothing the branches. One of the handsomest of the long-leaved Pines.

PINUS BRUTIA.—*Tenore.*

(Calabrian Pine.)

SYN.—*Pinus conglomerata.*—Gräffer.

A tree of considerable size, indigenous to the mountains of Calabria. It resembles in general appearance *Pinus halapensis,* but differs in its longer leaves and shorter cones, which are collected in clusters. Leaves eight or nine inches long, very slender, of a light green, thickly placed upon the branches.

PINUS CEMBRA.

(Cembran or Swiss Stone Pine.)

A native of the mountains of Europe and northern Asia, at great elevations, often close upon the snow line. It is an invaluable tree for planting on cold, elevated situations in this country. Height from fifty to one hundred feet, varying much, according to soil and

situation; for although becoming a creditable tree in the poorest and most exposed situations, it grows taller and more rapidly in favourable localities. Its habit is compact; general outline conical, with palish, somewhat glaucous green foliage. We observed a fine specimen of this fir, sixty feet high, in the grounds of G. S. Foljambe, Esq., Osberton, Notts.

P. c.—*var.* pumilo.—*Endlicher.*

Syn.—*Pinus Cembra pygmæa,*—Loudon.

(Dwarf Siberian Stone Pine.)

Indigenous to the rocky slopes of the mountains of Siberia, where it occurs as a dwarf bush, five or six feet high, clothing the most exposed situations.

PINUS CEMBROIDES.—*Zuccarini.*

(Cembran-like Stone Pine.)

Resembles *Pinus Llaveana* in foliage, but has smaller leaves. A very handsome tree, indigenous to the mountains of California, at an altitude of 10,000 feet, where it occurs as a dwarf tree twenty to thirty feet high. Branches slender, in regular whorls; leaves numerous, of a light green.

PINUS DEVONIANA.—*Lindley.*

(Duke of Devonshire's Pine.)

A tree from sixty to eighty feet high, indigenous to Mount Ocotillo in Mexico, with leaves a foot long. This species is remarkable for the size of its young shoots, which are often an inch in diameter. A very noble tree. Not very hardy.

PINUS EXCELSA.—*Wallich.*

(Nepal Pine.)

SYN.—*Pinus Strobus.*—Hamilton.
Pinus Chylla.—Loddiges.
Pinus Dicksonii.—Gardens.
Pinus pendula.—Griffith.

The true species is very handsome, but there are many varieties in cultivation bearing the name but little superior to the Weymouth Pine, to which it bears some resemblance. Height about one hundred feet. Branches placed in regular whorls, which, with the trunk, are covered with a smooth grey bark. Leaves six or seven inches long, slender, of a pale glaucous green, partially drooping. It is an invaluable tree for planting on poor sandy soils, in exposed situations, succeeding well where most of the other Pines would scarcely grow at all.

PINUS FILIFOLIA.—*Lindley.*

(Thread-like-leaved Pine.)

A very noble tree, a native of Guatemala, remarkable for its slender thread-like leaves, which are often twelve or fourteen inches long. It much resembles *Pinus australis,* especially in its very robust branches. Only sufficiently hardy for favourable localities.

PINUS FREMONTIANA.—*Endlicher.*

(Captain Fremont's Pine.)

SYN.—*Pinus monophylla.*—Torrey.

Found at very great altitudes on the mountains of California, where it seldom grows above twenty feet high. Branches numerous, verticillate. Leaves glaucous green. The seeds of this species are used to a large extent by the Indians inhabiting the district where it abounds.

PINUS GERARDIANA.—*Wallich.*

(Captain Gerard's Pine.)

SYN.—*Pinus Neosa.*—Govan.

This tree is found inhabiting the Himalayas, generally on the northern slopes of the mountains, at elevations varying from 5000 to 10,000 feet. When young its form is symmetrical, but when older its branches become contorted and irregular, and the tree then assumes a highly picturesque character. Leaves about four inches long, of a very dark green. None of the Pines are better adapted for cold hills, as it refuses to thrive at all in warm sheltered situations. On the bleak mountains of the north of Scotland it succeeds well.

PINUS GORDONIANA.—*Hartweg.*

(Gordon's Pine.)

Indigenous to the Saddle Mountains of Mexico, where it occurs as a very handsome tree, sixty or eighty

feet high, with leaves often sixteen inches long, very slender, pendulous, and of a beautiful light green. A very ornamental species, and will probably be sufficiently hardy for most localities in this country.

PINUS GRENVILLEÆ.—*Gordon.*

(Lady Grenville's Pine.)

Much resembles *Pinus macrophylla.* Found on the highest peaks of Corra de San Juan, in Mexico. A very robust tree, seventy or eighty feet high, of irregular growth. Leaves deep green, twelve or fourteen inches long. A noble and probably hardy tree.

PINUS HARTWEGII.—*Lindley.*

(Hartweg's Pine.)

A native of the mountains of Mexico, at an elevation of about 9000 feet. It occurs immediately above the limits of *Abies religiosa.* Height about fifty feet. Leaves six inches long. It was introduced in 1839, and has proved tolerably hardy, but is sometimes damaged by spring frosts; and during very severe frosts in winter its foliage becomes slightly brown. A very handsome species.

PINUS HALEPENSIS —*Miller.*

(Aleppo Pine.)

SYN.—*Pinus genuensis.*—Cook.
Pinus cairica.—Don.

Indigenous to the coasts of the Mediterranean, in dry sandy or rocky soils. Though sometimes growing

thirty or forty feet high, it is often much less, with the character of a shrub rather than a tree. Branches very slender and numerous. Leaves two or three inches long, of a deep green, remaining only two years upon the branches, from which circumstance the tree has generally a thin straggling appearance. Succeeds well amongst rocks, where the soil is scanty.

PINUS INOPS.—*Solander.*

(Jersey Pine.)

Syn.—*Pinus virginiana.*—Miller.

This tree, besides being very ornamental, is well adapted for planting in dry sandy soils, upon elevated inland districts. It is a native of the interior of N. W. America. Height about forty feet, with a clean stem, when full grown, of fifteen or twenty feet. Leaves about three inches long, of a dark green colour.

PINUS INSIGNIS.—*Douglas.*

(Remarkable Pine.)

Syn.—*Pinus californica.*—Loiseleur Deslongchamps.
Pinus adunca.—Bosc.

As a very distinct and beautiful tree, this species yields to no other Pine. It is universally admired, and is always conspicuous in the Pinetum, no matter how select the collection of which it forms a part. Colour a very rich vivid green. Leaves five or six inches long. A native of California, perfectly hardy, and grows very rapidly; in confirmation of which we may

state, that a specimen at Osborne made shoots six feet six inches long last season; but the situation was well prepared for it before planting.

PINUS LLAVEANA.—*Schiede.*

(La Llava's Stone Pine.)

Is one of the hardiest Pines, and is well adapted for planting on bleak hill-sides. It is a dwarf tree, seldom more than fifteen or twenty feet high, indigenous to the mountain slopes about Real del Oro in Mexico. Foliage glaucous green. Leaves short and thickly set in tufts upon the branches. An ornamental tree.

PINUS LAMBERTIANA.—*Douglas.*

(Lambert's Pine.)

A very lofty tree, sometimes two hundred feet high in its native habitats in N. W. America. It attains its greatest height in pure sand, according to Douglas's account, by whom it was introduced, and in such situations perfects its large edible seeds in abundance. As it approaches maturity, its trunk becomes free of branches for about one-third its entire height, bearing a pyramidal-shaped head. Branches verticillate, somewhat pendulous. Leaves four inches long, of a bright green. A specimen has produced cones at A. G. Speirs', Esq., Culcruick, by Fintry, Stirling. There is a variety in cultivation with shorter foliage than the species.

PINUS LARICIO.—*Poiret.*

(Corsican Pine.)

SYN.—*Pinus altissima.*—Gardens.
Pinus caramanica.—Gardens.
Pinus calabrica.—Gardens.
Pinus romana.—Gardens.

A noble tree, indigenous to Spain, Corsica, and other countries bordering on the shores of the Mediterranean. Height from one hundred and forty to one hundred and fifty feet. Branches in whorls, forming a tolerably regular pyramidal head. Leaves somewhat slender, of a dark green, six or seven inches long, often twisted. A valuable and ornamental tree, of very rapid growth. It is said that rabbits will not attack this species.

PINUS LINDLEYANA.—*Loudon.*

(Lindley's Pine.)

A large and very noble tree, from the mountains of Mexico, much resembling *Pinus Montezumæ*.

PINUS MACROPHYLLA.

(Large-leaved Pine.)

A low tree, inhabiting Mount Ocotillo in Mexico, but is rarely met with. Hartweg, by whom it was introduced, found only one specimen. It resembles *Pinus Russelliana*, but has longer and stiffer leaves. Not very hardy.

PINUS MACROCARPA.—*Lindley.*

(Large-coned Pine.)

SYN.—*Pinus Coulteri.*—Don.
Pinus Sinclairii.—Kew Gardens.

Indigenous to N. W. America, about Santa Lucia, where it attains a height of one hundred or one hundred and twenty feet. Foliage glaucous green. Leaves very long, often fifteen inches. A very remarkable and beautiful Pine. It is sometimes called Great Hooked Pine, in allusion to the appearance of the scales of the cones, which are very large, often a foot long, and weighing four pounds. This species, *Pinus Sabiniana*, *tuberculata*, *radiata*, *muricata*, and *pungens*, form a distinct section, remarkable for their permanent cones, and elongated spinous scales. Perfectly hardy.

PINUS MITIS.—*Michaux.*

(Soft-leaved or Yellow Pine.)

Resembles *Pinus inops*. It is very attractive when making its young shoots, as they are covered with a beautiful violet-coloured bloom. Leaves four or five inches long, dark green. A native of North America. Height from fifty to sixty feet.

PINUS MONTICOLA.—*Douglas.*

(Mountain Weymouth Pine.)

This species much resembles *Pinus Strobus*, its branches being arranged in the same whorl-like manner; but its foliage is shorter, and of a darker green. Indigenous to the banks of the Columbia

river in North West America, where it grows one hundred feet high. Very handsome and very hardy.

PINUS MONTEZUMÆ.—*Lambert.*

(Montezuma's Pine.)

An irregularly branched tree, forty or fifty feet high, with a rough thick bark, inhabiting the mountains of Mexico. Leaves five or six inches long, glaucous green. Much resembles *Pinus Lindleyana*, and is the hardiest of the Mexican Pines.

PINUS MUGHO.—*Bauhin.*

(Mugho Pine.)

Syn.—*Pinus uncinata.*—Ramond.
Pinus montana.—Baumann.
Pinus rotundata.—Link.

This species resembles *Pinus pumilio* in general appearance, but differs from it by forming in favourable situations a tree-like stem, which *pumilio* never does, yet, like the latter, becoming in cold and elevated situations a low stunted tree or bush. Sometimes it may be found, in very congenial localities, as high as forty feet, with numerous horizontal branches, and a dense foliage resembling *Pinus sylvestris*. For planting on barren hill-sides it ranks next in point of usefulness to *Pinus pumilio*.

P. M.—*var.* humilis.—*Link.*

(Dwarf Mountain Pine.)

Not so tall as the species; very useful for planting in exposed situations.

P. M.—*var.* obliqua.

(Marsh Mugho Pine.)

More symmetrical in growth than the species, and a more handsome tree.

PINUS MURICATA.—*Don.*

(Bishop Pine.)

SYN.—*Pinus Edgariana.*—Gardens.

Indigenous to California, where it is known as the Bishop Pine. Its habitat is on the mountains, at an elevation of above 3,000 feet. In appearance it is stunted, and does not usually grow higher than forty feet. The cones are remarkable for the lateral development of their scales. Colour of the foliage resembling *insignis*, but the leaves are longer. A very handsome and hardy species.

PINUS OOCARPA.—*Schiede.*

(Egg-shape-coned Pine.)

Very closely resembling *Pinus Montezumæ*. A native of the warmer localities on the western declivities of the mountains of Mexico, at elevations from 4000 to 5000 feet on the south coast. Height forty to fifty feet. Leaves slender, about a foot long. Although considered too tender for this climate, it is hardy in many favourable localities, and will probably prove more so than is supposed.

PINUS ORIZABÆ.—*Gordon.*

(Orizaba Pine.)

A small tree from the mountains of Mexico, resembling *Pseudo-Strobus*. It has leaves eight or nine inches long, very slender, and sharp-pointed, thickly set upon the branches, and of a light green colour.

PINUS PALLASIANA.—*Lambert.*

(Tartarian Pine.)

Syn.—*Pinus taurica.*—Gardens.
Pinus tatarica.—Gardens.

Indigenous to the limestone mountains in the central and western regions of the Crimea. A lofty tree, branching from the base. Branches declining. Leaves five inches long, of a light shining green. An excellent tree for chalky soils and barren sea downs.

PINUS PATULA.—*Schiede.*

(Spreading-leaved Pine.)

Distinct and beautiful, with pale lively green foliage. Leaves eight or nine inches long, spreading, sometimes pendulous. A native of Mexico, at considerable elevations. Although this species is generally considered too tender for our climate, it has stood uninjured for many years in various parts of the kingdom, both in the southern and midland counties. As it is somewhat spring-tender, the treatment recommended for such will be necessary to ensure success. *P. p.* var. *stricta* has stouter and more erect leaves.

PINUS PERSICA.—*Strangways.*

A hardy species from the south of Persia.

PINUS PINASTER.—*Solander.*

(Cluster Pine.)

SYN.—*Pinus Massoniana.*—Lambert.
Pinus maritima.—De Candolle.
Pinus nepalensis.—Royle.
Pinus Hamiltoniana.—Tenore.

There are many varieties of this well-known tree in cultivation—some with useful, others with merely curious peculiarities. The species is native over a wide range on the mountains and coasts of continental Europe, and in parts of India, China, and Japan. Height about sixty feet, when growing in good dry sandy soils, with a porous subsoil; but much dwarfer in wet or peaty soils. It is a very picturesque tree, and invaluable for planting in sandy places near the sea.

P. P.—*var.* Escarena.—*Risso.*

(Earl of Aberdeen's Pinaster.)

Handsome and distinct, with paler foliage than the species.

P. P.—*var.* Lemoniana.—*Bentham.*

(Sir Charles Lemon's Pinaster.)

A curious variety, the description of which we quote from the "Transactions of the Horticultural Society:"—"In this obscure species [variety] the cone is single (in the species they are in whorls), and

it universally occupies the place of the leading shoot, the side shoots being behind it. The necessary consequence of this mode of growth is, that the tree can have no regular leader; but each year one of the side shoots strengthens, and consumes the growth for the ensuing season: the year following the same process is repeated in another direction, giving the stem of the tree a zigzag appearance which it never loses."

P. P.—*var.* minor.—*Loiseleur. Deslongchamps.*

(Cortean Pinaster.)

This variety is said to be hardier than the species, and to succeed on the most barren and exposed situations.

P. P.—*var.* variegata.—*Loudon.*

(Variegated-leaved Pinaster.)

An interesting variegated variety.

PINUS PINEA.—*Linnæus.*

(Stone Pine.)

SYN.—*Pinus densiflora.*—Siebold.
Pinus aracanensis.—Gardens.

A large, flat-headed tree, occurring in the south of Europe, about the shores of the Mediterranean. Height sixty or seventy feet. Leaves deep green, six or seven inches long. It is found to thrive best in a deep light soil, and is one of the most picturesque Pines.

P. P.—*var.* cretica.—*Gardens.*

(Cretan Stone Pine.)

Has smaller leaves than the species.

P. P.—*var.* fragilis.—*M. du Hamel.*

(Thin-shelled Stone Pine.)

The seeds of this variety have thinner shells than the species, for which reason they are preferred by the Neapolitans, by whom they are highly esteemed.

PINUS PONDEROSA.—*Douglas.*

(Heavy-wooded Pine.)

Indigenous to North-Western America, on the banks of the Columbia and other rivers. A large and robust tree, with few branches, which are placed in distant whorls, from which circumstance, and from the foliage being collected in tufts at the point of the shoots, the tree has a thin appearance. When young the branches are horizontal, but when older they take a downward direction. Leaves from ten inches to a foot long, straight, and stiff.

PINUS PUMILIO.—*Hænke.*

(Dwarf or Mountain Pine.)

SYN.—*Pinus tatarica.*—Miller.
Pinus pungens.—Scopoli.
Pinus sylvestris montana.—Aiton.

This species, under the most favourable circumstances, never attains a great height, seldom more

than thirty feet; and at great elevation and in very exposed places it becomes a dwarf spreading bush, with very prostrate rooting branches, producing a dense thicket. For covering bleak chalky hills it has no rival, or, in fact, for any situation where a close, low, evergreen growth is required, and where most other trees or shrubs will not succeed.

PINUS PUNGENS.—*Michaux.*

(Table Mountain Pine.)

Has the habit of *sylvestris*, but is more numerously branched, and the foliage is paler. A native of the mountains in North Carolina, and in Virginia.

PINUS PSEUDO-STROBUS.—*Lindley.*

(Bastard Weymouth Pine.)

Occurs about Anganguco in Mexico, at an elevation of 8000 feet above the sea. Leaves eight or ten inches long, slender, and glaucous, like those of the Weymouth Pine.

PINUS PYRENAICA.—*La Peyrouse.*

(Pyrenean Pine.)

Syn.—*Pinus pencillus.*—La Peyrouse.
Pinus hispanica.—Cook.
Pinus halapensis major.—Gardens.
Pinus monspeliensis.—Vilmorin.

A lofty, handsome, quick-growing tree, indigenous to the Pyrenees, with very long, slender, erect leaves, of a beautiful green, which are "arranged round the branches like the hairs of a camel's-hair pencil."

PINUS RADIATA.—*Don.*

(Radiated-scaled Pine.)

Highly ornamental, growing one hundred feet high, on the coast about Monterey, in California. Branches thickly clothed with dark green slender leaves. From its natural habitats being near the sea, it will probably prove a desirable tree for planting in similar situations in this country.

PINUS RESINOSA.—*Solander.*

(Resinous or Red Pine.)

Syn.—*Pinus rubra.*—Michaux.

A tree seventy or eighty feet high, indigenous to North America; remarkable for its slender trunk, which scarcely varies in diameter for the greater part of its height. It derives the name Red Pine from the colour of its bark. Leaves five or six inches long, deep green, collected in bunches at the extremities of the branches.

PINUS RIGIDA.—*Miller.*

(Rigid Pine.)

Syn.—*Pinus Tœda rigida.*—Aiton.
Pinus Loddigesii.—Loudon.

Found in Pennsylvania, Virginia, and other parts of the United States of America, and in California, in a variety of soil and situation, sometimes in damp places, and often upon dry sandy plains, but succeeds best in soils of a moist character. Height fifty or sixty feet, with a much-branched trunk. Leaves stiff, of

unequal length, averaging three inches. Useful for planting in many situations where few other Pines will succeed.

PINUS RUSSELLIANA.—*Lindley.*

(Duke of Bedford's Pine.)

One of the handsomest long-leaved Pines, a tall and noble species, from the mountains of Mexico. Leaves seven or eight inches long. Tolerably hardy.

PINUS SABINIANA.—*Douglas.*

(Sabine's Pine.)

From the Cordilleras of New Albion, where it often attains a height of one hundred feet. It is abundant in localities about 1600 feet below the line of perpetual snow. When growing in masses, its straight and taper trunk is clear of branches a great part of its height, but when standing alone it becomes branched to the ground. Leaves palish green, a foot long, drooping when matured. This species bears remarkable cones, often a foot long, and eighteen inches in circumference, the scales of which are hook-pointed. They are produced in whorls of six or eight, and remain upon the tree for years. It prefers a rather rich soil, and is one of the hardiest Pines.

PINUS SEROTINA.—*Michaux.*

(Pond Pine.)

SYN.—*Pinus Tæda alopecuroidea.*—Aiton.

Is found in the swamps of Pennsylvania, Carolina, and other states of North America, whence its name

Pond Pine. Sometimes it is found on the sea coast. Height thirty or forty feet, with a slender trunk. Leaves six inches long. It is useless as timber, but will be found valuable for planting in swampy situations.

PINUS STROBUS.—*Linnæus.*

(Weymouth Pine.)

A tall tree, often two hundred feet high, indigenous to North America. It is valuable for planting in cold situations, but thrives best in a tolerably rich soil. In general form it is pyramidal, especially in young trees, with a remarkably taper trunk, the branches regularly verticillate. Leaves about four inches long, of a palish green. Of the varieties in cultivation, the most distinct are *alba* and *brevifolia*.

PINUS SYLVESTRIS.

(Scotch Fir.)

Syn.—*Pinus altaica.*—Ledebour.

This well-known tree needs little description. There are many varieties in cultivation, of which the principal are *communis*, or white-wooded, *rubra*, or red-wooded, and *latifolia*, or broad-leaved.

PINUS TEOCOTE.—*Chamissa and Schlecht.*

(Teocote Pine.)

A tall tree, from Mount Orizaba, in Mexico.

Foliage light green. Leaves four inches long, twisted, thickly covering the branches.

PINUS TUBERCULATA.—*Don.*

(Tuberculated Pine.)

SYN.—*Pinus californica.*—Horticultural Society.

In general appearance this species resembles *Pinus radiata*, and was introduced from the same country, the coast of Monterey in California. It has, however, larger cones than that species.

PINUS TÆDA.—*Linnæus.*

(Loblolly Pine.)

A native of Florida and Virginia, and, like *Pinus rigida*, is found in a great diversity of soils and situations; sometimes on dry sandy plains, often in low damp localities, and frequently on the sea coast. In poor soils and exposed situations it becomes a low and much-branched tree; but in damp and sheltered spots often reaches sixty or seventy feet in height. Well adapted for poor sandy soils.

PINUS VARIABILIS.—*Lambert.*

(Bastard or Variable-leaved Pine.)

SYN.—*Pinus echinata.*—Miller.

Between this species and *Pinus mitis* of Michaux, there is a great general resemblance; but *variabilis* lacks the beautiful violet bloom so attractive on the

young shoots of *mitis*. Indigenous to the sandy coasts of North America. Leaves dark green, about two inches long.

PINUS WINCESTRIANA.—*Gordon.*

(Marquis of Winchester's Pine.)

A tree fifty or sixty feet high, with the irregular habit of *Pinus Montezumæ*, but with fewer branches, and longer leaves. The latter, which are thickly set upon the branches, are from twelve to fourteen inches long. Colour glaucous green. A distinct species, but not very hardy.

SALISBURIA.—*Smith.*

(The Ginkgo.)

SALISBURIA ADIANTIFOLIA.—*Smith.*

Syn.—*Ginkgo biloba.*

(Maiden-hair, or Ginkgo Tree.)

A deciduous Conifer, indigenous to China and Japan, where it attains a large size, with the habit of the Walnut. In young trees the trunk is slender and much branched, with a thin conical or spiry appearance. It is quite hardy and very attractive, owing to its singular fan-shaped leaves, which are of a beautiful pale green colour.

SAXE-GOTHÆA.

SAXE-GOTHÆA CONSPICUA.

Found on the mountains of Patagonia, and said to be perfectly hardy in this country. In its native habitats it forms a tree about thirty feet high, and resembles in general habit our common yew, but the colour of its foliage is less sombre. Leaves bright green above, glaucous beneath.

SEQUOIA.—*Endlicher.*

SEQUOIA GIGANTEA.—*Endlicher.*

Syn.—*Taxodium sempervirens.*—Gardens.

From the descriptions which travellers give of this species in its native habitats, it may well be considered as one of the most gigantic of trees. They tell us, that in California it is often found of the enormous height of three hundred feet, with a trunk from twelve to eighteen feet in diameter. In this country it is a handsome, quick-growing tree, with slender, flat, somewhat drooping branches. Leaves deep green above, glaucous beneath. It should not be planted in exposed situations, not that it is not perfectly hardy, but because its branches are liable to be damaged by high winds.

TAXODIUM.—*Richard.*

TAXODIUM DISTICHUM.—*Richard.*

(Deciduous Cypress.)

SYN.—*Cupressus disticha.*—Linnæus.
Schubertia disticha.—Mirbel.

A lofty deciduous tree, indigenous to the swamps of Mexico and the United States of America. When young its form is pyramidal, but in maturity it has a flat spreading head. Its foliage is of a beautiful light green, especially when young, changing in autumn to a rich warm-brown. Its natural habits well indicate the most suitable situations for it, viz., on the banks of rivers and ponds, or in swampy places; but it thrives well in any deep, rich, moist soil, and grows rapidly.

TAXUS.—*Tournefort.*

(Yews.)

All the Yew tribe thrive best in a rich soil; scarcely any place can be too rich for them; for although they succeed in those of an ordinary character, if it is desired to develope their real beauties, enriching materials should be given at the time of planting. If the soil is poor and sandy, places should be prepared by digging large holes, taking away half the worst

mould, and making good with manure and sound loam in equal parts.

TAXUS ADPRESSA.—*Gardens.*

Syn.—*Cephalotaxus tardiva.*—Siebold.
Cephalotaxus brevifolia.—Gardens.

This very handsome and distinct species is indigenous to Japan, and is remarkable for its glossy green leaves, in which particular it differs from any other Yew. Its branches are very rigid, arranged in whorls, with distichous branchlets, which are closely covered with rich green foliage.

TAXUS BACCATA.—*Linnæus.*

(Common Yew.)

This well-known tree, like all the other Yews, thrives best in a rich soil. It is a valuable plant for evergreen undergrowths, succeeding well beneath other trees, where drip and a deficiency of light prevent other evergreens from flourishing.

T. b.—*var.* Dovaston.—*Gardens.*

(Weeping Yew.)

A very handsome variety, with broader leaves than the species, and with stiff drooping branches.

T. b.—*var.* ericoides.

(Heath-like Yew.)

A very interesting variety, with the foliage and general appearance of a Heath, and with the habit of

the Irish Yew. We have lately received it from the Continent.

T. B.—*var.* lutea.—*Endlicher.*

(Yellow-berried Yew.)

Does not differ in general appearance from the Common Yew, but has berries of a bright yellow, which render it very attractive when in fruit.

T. B.—*var.* stricta.—*Gardens.*

(Erect-branched Common Yew.)

A handsome variety, with erect branches, and much smaller leaves than the species.

T. B.—*var.* sparsifolia.—*Loudon.*

(Scattered-leaved Common Yew.)

Combines the habit of the species with the foliage of *Taxus fastigiata*, or Irish Yew.

T. B.—*var.* variegata.—*Loudon.*

(Variegated Yew.)

Has the foliage blotched with whitish yellow. Interesting to those who love variegated plants.

TAXUS CANADENSIS.—*Willdenow.*

(The Canadian Yew.)

SYN.—*Taxus procumbens.*—Loddiges.

Indigenous to Canada, the banks of the Columbia

river, and other parts of North America. Branches slender, spreading, or procumbent. Foliage of a reddish tint, in which particular it differs much from the European species.

TAXUS FASTIGIATA.—*Lindley.*

(Irish Yew.)

Syn.—*Taxus hibernica.*—Mackay.

An erect bush or small tree, remarkable for its deep green foliage and formal character. The latter renders it of great value for planting in geometrical gardens. It requires to be kept to one leading shoot, otherwise it assumes a loose spreading head, with the form of an inverted cone, and in which state it is liable to damage from snow and wind. Its leaves, unlike those of the Common Yew, are scattered over the branches, and not arranged in parallel rows.

THUIA.—*Linnæus.*

(Arbor Vitæ.)

THUIA OCCIDENTALIS.—*Linnæus.*

(The American Arbor Vitæ.)

Syn.—*Thuia obtusa.*—Mönch.
Cupressus Arbor Vitæ.—Targioni Tozzetti.

A handsome tree, forty or fifty feet high, indigenous to Canada, the mountains of Virginia and Carolina,

occurring in damp or swampy situations. Form slender and pyramidal when young, but irregular and picturesque when old. Branches distant and horizontal.

THUIA PLICATA.—*Don.*

(The Plaited Arbor Vitæ.)

SYN.—*Thuia Warreana.*—Booth.

This very handsome species is conspicuous for its compact habit, very flat branchlets, and deep green foliage. It is indigenous to N. W. America, where it forms a tree of considerable size. Very hardy and ornamental.

HARDY EVERGREEN TREES AND SHRUBS, *Not* CONIFEROUS.

A few prefatory words are necessary. Although all the plants mentioned and described in the following pages are hardy, they are not equally so. Some require the most favourable situations, while others will succeed in any part of the country, and a few require particular soil and treatment. These will always be indicated in their respective descriptions. But where no such allusions are made, they may be considered as requiring nothing beyond the ordinary soil and treatment with other hardy occupants of the pleasure-ground.

The arrangement, like that of the Coniferæ, is alphabetical.

A treatise on the cultivation of American plants, and on the newly-introduced *Sikkim Rhododendrons*, are inserted by way of introduction.

ON THE CULTIVATION OF AMERICAN PLANTS.

The substance of this treatise appeared as an introduction to our descriptive catalogue of select hardy

ornamental plants, published in the spring of 1850. That catalogue being now out of print, and the demand for the treatise still being great, we are induced to reproduce it in the present work.

From what we then stated, as to the practicability of inducing the Rhododendron and its allies to flourish in situations hitherto considered altogether inappropriate to them, we have nothing to detract. On the contrary, our increased experience and observation in various parts of the country enable us to state with confidence, that scarcely a locality exists, which presents sufficient obstacles to prevent the successful introduction of these most desirable and universally admired plants. The following practical directions will, we trust, enable any person to succeed who may be desirous of doing so.

The beauty of the Rhododendron, which, in a garden sense, may be considered as the type of all the plants which this treatise is intended to illustrate the culture of, is well known; we will not, therefore, occupy the reader with allusions to its many points of excellence. The numerous race of hardy hybrids, which skilful cross-breeding between the Indian and American species has produced, is unrivalled as ornamental shrubs; for we have now successfully combined richness of colour and beauty of form with hardiness of constitution; and have combatted their tendency to bloom at so early a period in the spring, when frost almost invariably destroys the flowers in a half-opened state, a tendency which all the first crosses with *R. arboreum* evince in a great degree, and

which entirely unfits them for open-air culture, except in a few favoured localities.

As an example of the success which has attended their cultivation in a bleak and naturally sterile locality, we give in detail the practice adopted in our own nursery, and the results which have followed. A situation more unpromising in appearance than its original and uncultivated condition can scarcely be imagined. A black sandy soil, some twelve or fifteen inches deep, resting upon a clayey subsoil, almost wholly deficient in vegetable matter, has by cultivation been rendered in the highest degree productive. Our first operation was to drain it from three-and-a-half to four feet deep; it was then trenched two feet deep; and to every acre so treated, a dressing of from thirty to forty tons of good farmyard manure was given. Previously, however, to occupying the ground with American plants, it was deemed advisable to take a root crop, to exhaust the rankness of the manure. After this treatment the plants were found to thrive amazingly; but like all others occupying very poor soils, they derive great benefit from the application from time to time of suitable enriching materials. When, however, manure is given directly to the plants it should be well decomposed.

The erroneous opinion that peat or bog earth are the only suitable soils for the growth of Rhododendrons cannot too soon be dispelled. The implicit belief in such has alone debarred many from attempting their cultivation, when no really formidable obstacle was present. An excellent compost for them

may be made as follows: To two parts of sandy loam, or indeed any sandy soil, which does not contain much chalk or lime, add one-fourth leaf-mould, one-eighth sand, and one-eighth well decomposed manure. If wanted immediately, the whole should be well incorporated before using; but much advantage would result from allowing the mixture to remain twelve months, turning the whole well together two or three times, during that period. When the fertility of the beds becomes exhausted, as we have previously observed, a dressing of thoroughly rotten manure will be found highly beneficial. Under such conditions, manure is as grateful to a Rhododendron or an Azalea as to the most confirmed of vegetable gourmands.

An important fact to be remembered in the cultivation of American plants, is that they must *never be allowed to become thoroughly dry at the root.* Upon the strict observance of this simple axiom rests much of the success to be attained in the cultivation of these, and all similarly fine-rooted plants. They experience more injury from excessive root dryness than from any other shrub we are acquainted with. Moisture *must* be retained about their roots. From the want of such, especially during the growth and maturation of their wood, the whole economy of the plant becomes affected, and it is then difficult to induce a healthy reaction. The worst results follow. The wood being imperfectly organised, flower-buds are but scantily produced, and those in an unhealthy condition. The results at the blooming season may be anticipated;

the flowers, partaking of the general debility, are deficient in all the essentials of beauty—form, size, and colour: their proprietor becomes disappointed, believes his locality unfavourable to their growth, and abandons their cultivation.

Although the presence of moisture is thus strongly insisted on as an indispensable adjunct, it must not be inferred that *stagnant* water must be allowed; where such is present, or likely to accumulate, drains must be had recourse to; and where the soil is not naturally suitable, a compost similar to that above described must be supplied; and if the beds can be so arranged as to give the plants the benefit of the shade of trees, without the drip from them, it will be an acquisition.

In ordinary cases, where stagnant water is present, draining, in the usual mode, will correct its injurious effects; but there are many situations in which it may be desirable to plant, where draining would be altogether impracticable, or would involve too large an outlay, as in bogs and swamps, where great labour would be required to obtain sufficient fall for the outlet. Under such circumstances the desired end may be arrived at by the following process:—Procure a quantity of old pollards, poles, faggots, and brushwood, or any materials of a similar nature, and with them form a foundation for the soil, on the swamp in which you wish to plant. Upon this sufficient mould must be placed, that, after allowing for subsidence, not less than eighteen inches will remain above the bog. In a site thus prepared, Rhododendrons will be found to

attain great perfection ; and as their growth will be rapid, the whole substance of the prepared soil will quickly become matted together by the roots, effectually preventing any further subsidence after the foundation has decayed.

In the lake at Highclere, the seat of the Earl of Carnarvon, are numerous small islands from ten to twenty yards in diameter, planted with Rhododendrons; many of them are twelve or fifteen feet high, presenting, in the blooming season, dense masses of flower from their summits to the surface of the lake. The soil of these islands is not more than eighteen inches above the surface of the water.

The natural habitat of the Rhododendron is on or near the margin of morasses, or in analogous situations. There are, however, remarkable exceptions.

On the Himalayas, *R. arboreum* is often found growing luxuriantly in the fissures of rocks, in situations where moisture is apparently but scantily supplied; and travellers who have visited the regions where they abound speak in warm terms of the beautiful appearance of masses of its richly coloured flowers.

But it must not be understood that plants in such situations on the Himalayas are subject to so great a deficiency of moisture as is usually associated with analogous situations. The air in the Rhododendron habitats on those mountains is saturated with moisture, and rains are frequent and abundant. So moist, indeed, is the climate, in some of the valleys of the slopes on which the Rhododendrons grow, that Rice

is cultivated without irrigation; and in the dense woods on the mountains many of the Rhododendrons become epiphytical on rocks and trees—a condition which could not be maintained except in an excessively moist climate.

In the grounds attached to many residences in the country are swampy situations, which, if treated as we have above described, would become excellent situations for placing groups of American plants in. They might be so arranged as to be in view from the windows of the dwelling, or from various positions in the walks and "drives." At all seasons they would be interesting—at the blooming period, magnificent.

Having endeavoured to show that a considerable amount of moisture must be secured for the successful cultivation of the Rhododendron, and as there are many situations, naturally of an opposite character, where it may be desirable to plant them, we proceed to point out the manner by which the latter may be accomplished, and success obtained. The site for an American garden should, if possible, be chosen where the ground has an inclination to the north. Such, however, is not absolutely indispensable, but where a choice of situations can be had, select it by all means. Having decided upon the outline of the beds, proceed with their preparation as follows:—Remove eight or ten inches of the surface soil, with all its attached vegetation, to some convenient spot contiguous to your operations; then cart away from eighteen inches to two feet of the remaining soil, well breaking up the bottom, or trenching it eighteen inches deep would be

better still. Upon this, cast in the surface soil previously removed, well chopping it with the spade as the work proceeds, filling up with a sufficient quantity of prepared soil, that after settling it shall be a few inches below the natural surface; for, by securing a good depth of well-stirred soil for the retention of moisture, and keeping the surface of the beds perfectly flat and *below* the surrounding surface, to prevent the rain from running off without passing through the mass, the main points of success are secured. But it will be necessary in many situations to make drains from the bottoms of the beds, to allow the escape of superfluous water, and to prevent the soil, in which the plants are growing, from becoming saturated and unhealthy. During dry weather. after the beds are planted, the surface should be kept constantly stirred, for the double purpose of preventing the growth of weeds, and, by maintaining a smooth surface, retarding the evaporation of the accumulated moisture. Should an excessively dry season occur, the beds may with advantage be covered with the short grass from the lawns, or some similar material. If the beds are contiguous to trees, especially Elm or Ash, they are sure to be invaded by a legion of roots, which will, in a few seasons, if allowed unmolested possession, appropriate the greater part of the nourishment they contain. But as we recommend American plants in such and all dry situations to be re-planted, and the soil trenched to a depth of two feet every autumn, and the whole depth of the beds every third or fourth year, there will be nothing to fear on that head; and the soil from being

constantly permeable to rain, will always retain a large amount of moisture. No danger to the plants from constant removal need be apprehended. Rhododendrons can be transplanted with safety at almost any season, and particularly so when they are yearly subject to the treatment.

In cases where any difficulty occurs, it is mostly in the matter of soil; but we may state, in conclusion, that this is more apparent than real. Attached to every garden there is "the rubbish yard," which always contains something available. The sweepings of the lawns, the trimmings of walks, the refuse and clearings of the flower-beds, will, when thoroughly decomposed, furnish a compost well adapted for the purpose.

SIKKIM RHODODENDRONS.

No plants of recent introduction have created so much interest as the *Sikkim Rhododendrons*, discovered and sent to this country by Dr. Hooker during his late botanical mission to the Himalayan Mountains. The exquisite representations of the principal kinds, in "The Rhododendrons of Sikkim Himalaya," have in no small degree contributed to excite and strengthen expectation.

As we possess most of the kinds, and have been very successful in their cultivation, (our plants, we believe, being the largest in the trade,) we have thought that a few hints on their natural history and

culture would be very useful to many; especially as they are now in numerous establishments in all parts of the kingdom, and as we are frequently desired to furnish instructions for their cultivation with the plants we send out.

By whatever standard of floral beauty we judge of them they rank very high. Every quality which can possibly render plants attractive is combined in them. Beauty of form, richness and diversity of colour and fragrance, are possessed by them individually or collectively, and in foliage, too, they are equally diversified. *Falconeri*, a tree thirty feet high, has leaves twelve or eighteen inches long by six inches wide. *Argenteum*, growing to a similar height, has leaves equal in size, and with large compact globular heads of pure white flowers. Then there is *Hodgsoni*, with noble foliage and aspect, having large compact ovate heads of pale purple flowers, beautifully and symmetrically arranged. Others widely contrast with these. *Setosum*, a small and elegant shrub, with flowers resembling a *Rhodora*, but with evergreen box-like foliage; and *Glaucum*, a small shrub, two feet high, with leaves two or three inches long, and loose heads of pale pinkish-purple flowers, will serve as examples. And between these extremes there is great diversity in the character of the several species in height, foliage, and flower. The colours of the latter vary from pure white, or with the faintest tint of rose-colour in *Maddeni*, *Dalhousiæ*, and *Edgeworthii*, to the richest and deepest crimson in *Thomsoni* and *fulgens*. The latter is especially attractive, from the intensity of colour and polished

appearance of its blossoms, which are in compact globular heads. The flowers of *Dalhousiæ* are remarkable for their thick leathery texture, and for the length of time they remain in perfection, as well as for their delightful fragrance.

For the often-desired combination of yellow flowers with good evergreen foliage in Rhododendrons, *Wightii*, *lanatum*, and *campylocarpum* may be mentioned as examples. Then, in rose-colour, there is *Wallichii* and *glaucum*, with an infinite diversity of tint in other species.

The size of these flowers, too, is as remarkable and diversified as their colour. The individual blossoms of *Dalhousiæ* and *Edgeworthii* are four or five inches across, while those of the very interesting little *pumilum* and *eleagnoides* are not more than one inch: and while all are beautiful, each possesses some attractive feature peculiar to itself. Doubts have often been expressed whether the flowers, when produced from plants grown in this country, will equal in size those represented in the published drawing taken from others in their native habitats. We think there is no doubt but that they will exceed rather than fall short of the sizes there shown. The first species—*ciliatum*—flowered by us, exceeded in the size of its blossoms fully one-third those in the drawing. And there is abundant evidence to show that plants under a good system of cultivation often greatly exceed, both in luxuriance and in the size of their blossoms, others of the same kinds in their native habitats; and when such are brought from mountainous districts

to sheltered situations, these improvements are the more evident.

But independent of their intrinsic beauty, they will offer great resources to the hybridiser, combining as they do so many desirable qualities, necessary for plants occupying exposed situations. These the *Sikkim Rhododendrons* possess in a remarkable degree. The flower-heads of many of them are very compact and globular, and the texture of the blossoms thick and fleshy—qualities eminently calculated to resist the action of rain and wind. The same may be said of their foliage. The leaves are stout and leathery in texture, with remarkably stout footstalks, rendering them capable of resisting much rough weather. *Falconeri, fulgens*, and *Hodgsoni* have these qualities especially conspicuous. From the accounts given by Dr. Hooker of their time of flowering, many of them not putting forth their blossoms till June, we trust they will prove much more valuable as hardy plants than the old *arboreum*, which, however beautiful it may be, can only be successfully grown out of doors in the more favoured situations in Britain. Whether they will retain their late-blooming qualities in this country must for the present remain an open question; but as the greater part of them are perfectly hardy, if they should be found to bloom earlier than we anticipate from their natural habits, there are many situations in the country where spring frosts are very slightly or not at all felt, in which they may be successfully grown. It is possible, that one or two of the species, as *Dalhousiæ* and *argenteum*, may be better

suited for the conservatory than the American garden under any circumstances. But whatever situation they may be found best adapted for, any care or attention they may receive will be amply repaid by the great beauty of their flowers.

Not one of their least valuable qualities is the tendency they evince to produce their flowers when in a young state. We had several plants of *ciliatum* in bloom when but twenty months from the seed, and only three inches high.

As regards their general cultivation, the conditions we have insisted on, in our treatise on "American Plants," will equally apply to them, with this addition, that, if possible, situations having a greater amount of atmospheric moisture should be chosen for them. In bogs drained two or three feet deep they would succeed well. But it must be remembered that, while they will require a moist and cool subsoil, it must not arise from stagnant moisture. In the damp climate of a great part of Ireland, on the southern and western shores of England, and at the base of the mountains on the western coast of Scotland—situations where there is always a large amount of atmospheric humidity, with little frost—these beautiful plants will doubtless succeed well.

To gentlemen already possessing young plants we recommend the following course of treatment:—Procure a quantity of peat soil containing a large amount of vegetable matter, as it is necessary that it should be very rich, to which add about one-fifth silver sand; well mix it, and place a layer of it about

six inches deep in the bottom of a frame, in which place the plants at distances according to their size, allowing each plenty of room, and, while growing, shade from the direct influence of the sun, and keep them saturated with moisture. At a corresponding season, on their native mountains, they are deluged with rain: and it is from not affording them sufficient water that many persons have failed in their cultivation. From the want of it, the leaves, especially at the points and edges, become withered and brown.

A great point to be attended to in the cultivation of Rhododendrons, especially when under glass, is never to allow the temperature to get high, nor the atmosphere dry. Nearly all the species are natives of cool and moist regions, and if these (to them) unnatural conditions are allowed to occur, their healthy economy is sure to be materially deranged.

In placing them in the open ground, August will be the best season; a rainy time should, if possible, be chosen, and the plants should not be less than a foot high. After planting, boughs should be stuck in and around them, to afford a partial shade, as well as to prevent evaporation; and of course the plants will have been gradually prepared for their final removal.

From the fact that many of the species were discovered epiphytical on rocks and trees, it has been inferred that corresponding conditions in their culture must be secured in this country. But, from our own experience, we think that little importance in a cultural point of view should be attached to the circumstance, and we are confirmed in our opinion by that of

Dr. Hooker, in his very elaborate paper in the volume of "The Journal of the Horticultural Society" for the present year. The localities in which any of the species were found assuming the character of epiphytes were always excessively humid, often in dense woods. And the same species which there occurred as epiphytes became terrestrial in more open, and, of course, drier situations. This character must, therefore, be considered as merely local or accidental, and should by no means influence the course of treatment adopted for them in this country.

EVERGREENS.

ABELIA.

ABELIA UNIFLORA.—*R. Brown.*

A low evergreen shrub from the north of China, recently introduced. Stems and leaves smooth, branches spreading. Flowers pale, about an inch long, the upper part stained with violet. A very pretty plant, and very hardy.

ACACIA.

ACACIA DEALBATA.

Has stood in the open air in many parts of the country without protection, and is much hardier than is generally imagined; but it is of course only in the most favoured districts that it could be planted with success. At Taunton, in Somersetshire, a specimen has stood uninjured for many years, and which every spring is covered with yellow blossoms. It thrives best in a light loam, on a dry subsoil, grows very rapidly, forms a very handsome tree, the light and graceful character of its foliage rendering it very attractive.

ACACIA LOPHANTA.—*Willdenow.*

This species, like the last-named, succeeds very well in the southern parts of England, and thrives against a wall in the climate of London. It grows very rapidly, and flowers abundantly. It is a tall tree, with the peculiarly graceful foliage for which many of the Acacias and allied plants are so remarkable.

ANDROMEDA.—*Linnæus.*

Of this genus there are several elegant species, well worthy a place in the ornamental grounds of a residence. They are all low-growing shrubs, and require the same soil and treatment as Rhododendrons. With the exception of *Andromeda floribunda*, they look best when mixed with, or placed in the fronts of the borders of American plants.

ANDROMEDA FLORIBUNDA.

(Bundle-flowered Andromeda.)

Of all known species, this is the most desirable. As a single specimen it is very beautiful, and is so hardy, that in February and March, though the weather be severe, it is covered with racemes of pure white flowers, presenting a charming feature in the garden at a season when every flower is doubly valuable. Besides this, there are other desirable species, as *polifolia*, *dealbata*, *Catesbœa*, *axillaris*, *speciosa*, and *formosa*.

ANDROSÆMUM.—*Choisy.*

(Tutsan.)

ANDROSÆMUM OFFICINALE.—*Allioni.*

(Common Tutsan.)

A native of moist shady places in many parts of England, and valuable for planting in shrubberies and woods, beneath the shade and drip of other trees. It grows about three feet high, forming a close thicket of foliage. In summer it produces numerous large yellow flowers, which are followed by purplish or nearly black berries. Succeeds well in almost any soil.

ARBUTUS.—*Camerarius.*

(Strawberry Tree.)

This genus contains some of the handsomest hardy evergreen shrubs known to English gardens. They all succeed well in ordinary loamy soil, and require little attention as regards cultivation.

ARBUTUS ANDRACHNE.—*Linnæus.*

(Andrachne Arbutus.)

A fine species, with long, smooth, shining leaves, very slightly serrated. The outer bark of the stem peels off annually, in thin papery layers. Grows as rapidly as the common Arbutus, and is a very handsome tree.

ARBUTUS HYBRIDA.—*Ker.*

(Hybrid Arbutus.)

Syn.—*Arbutus Andrachnoides.*—Link.

Something less hardy than *unedo*, and does not bear fruit so freely, but it flowers in profusion. A rapid grower, height fifteen or twenty feet.

A. h.—*var.* Milleri.

A vigorous plant, with large leaves and delicate pink flowers.

ARBUTUS UNEDO.—*Linnæus.*

(Common Strawberry Tree.)

This well-known shrub is found attaining its greatest perfection on the rocks about the Lakes of Killarney. It is also indigenous to many parts of the continent of Europe. Height twenty or thirty feet. In the autumn, when covered with its whitish flowers and strawberry-like fruit, scarcely any shrub can be more beautiful. There are numerous varieties known in gardens, many of which are conspicuous for their very handsome flowers.

A. u.—*var.* rubra.—*Aiton.*

A very handsome variety, with red flowers.

A. u.—*var.* salicifolia.

Has narrow, willow-like leaves.

A. u.—*var.* crispa.

Leaves curled or twisted.

A. U.—*var.* Croomii.

This variety is conspicuous for its flowers, which are very large and beautiful. They are of the same colour as *A. u.* var. *rubra*, but much larger. The leaves are also much larger and more serrated. It blooms from October until Christmas, and nothing can be more handsome than its flowers.

ARBUTUS MAGNIFICA.—*Gardens.*

Supposed to be a hybrid between *A. procera* and *A. Andrachne*. In general appearance it much resembles the latter, but differs in the young shoots being of a reddish colour, and in its rounder leaves. It is also much more branched, forming a dense bush ten or fifteen feet high, and symmetrical in form, very hardy, and for beauty of growth and foliage it may be styled the king of Arbutuses.

ARBUTUS PROCERA.—*Douglas.*

(Tall Strawberry Tree.)

In general character this species resembles *Andrachne*, but differs in its serrated leaves and larger flowers. In its native habitats in the woods on the coast of North-West America, it forms a large shrub, and sometimes attains the character of a tree; and in this country it grows very rapidly, and is more hardy than the common one.

ARCTOSTAPHYLOS.—*Adanson.*

(Bearberry.)

ARCTOSTAPHYLOS ALPINA.—*Sprengel.*

(Alpine Bearberry.)

A pretty little trailing shrub, requiring peat earth and an airy situation. An admirable rock plant.

ARCTOSTAPHYLOS UVA-URSI.—*Sprengel.*

Inhabits heathy mountainous districts in this country, as well as in many parts of the European continent. It is a small trailing shrub, with leaves like the common box, and succeeds well in peat earth and a cool situation, as in the front of borders of American plants.

AUCUBA.—*Thunberg.*

AUCUBA JAPONICA.—*Thunberg.*

(Japan Aucuba.)

When first introduced to this country in 1783, it was treated as a stove plant. It has, however, now taken no mean rank among our best hardy evergreen shrubs. In Japan, its native country, it bears a profusion of red berries in spring. The sexes are diœcious, and only female plants are known to English gardens. Its large mottled foliage renders it a handsome shrub, and it succeeds better than most other evergreens in squares and gardens in the vicinity of towns.

AZALEA.

AZALEA AMŒNA.

This very interesting plant has been lately introduced from China. It is perfectly distinct from any other kind in cultivation. In habit and foliage it is very neat, and the form of the flowers is unique. They appear like two corollas, growing one within the other, and their colour is a rich rosy purple. It is also a very profuse bloomer, and flowers in a very young state. It also forces well. As a hardy plant for the flower garden, or to contribute to the gaiety of the conservatory, a more interesting one can scarcely be imagined. Azaleas require the same soil and treatment as Rhododendrons.

AZALEA OVATA.

A pretty evergreen shrub, from the hills of Northern China, where it is very conspicuous in the blooming season. Leaves bluntly ovate, nearly round, smooth, and shining. It has not yet bloomed in this country, but Mr. Fortune says it is very handsome. It certainly is very distinct in character.

BENTHAMIA.—*Lindley.*

BENTHAMIA FRAGIFERA.—*Lindley.*

(Strawberry-bearing Benthamia.)

First raised in this country from seeds in 1825, by

J. H. Tremayne, Esq., at Heligan, in Cornwall, and where it has proved quite hardy, and bears fruit in abundance. In its native habitats, on the mountains of Nepal, it grows to the size of a small tree. The flowers are terminal, in globular heads two inches across, surrounded by a yellowish-coloured petal-like involucre. The fruit somewhat resembles a mulberry, but is rounder and much larger, and of a reddish colour. Foliage grey or glaucous. Leaves two or three inches long. This plant is worthy of being more extensively planted. It is well adapted for a wall, even where it might not succeed in the open border.

BERBERIS.

BERBERRY.

All the species are handsome, and worthy of extensive cultivation. They thrive best in a good loam, but succeed very well in ordinary garden soil. Descriptions of the principal evergreen kinds are subjoined.

BERBERIS AQUIFOLIUM.—*Pursh.*

(Holly-leaved Berberry.)

Syn.—*Mahonia Aquifolium.* De Candolle.

Decidedly amongst the handsomest of the genus. Its deep green shining leaves almost rival those of the common Holly. It blooms abundantly in April and May, and bears in the autumn large clusters of deep purple berries, which are covered with a rich violet-

coloured bloom. Grows very rapidly, and besides being a very ornamental shrub, it makes excellent undergrowth, and all kinds of game are fond of its berries. Thrives best in a good loam, but succeeds very well in an ordinary soil.

BERBERIS TRIFURCA.

Another Chinese species. A very fine plant, with leaves nearly two feet long, composed of about seven pairs of leaflets and a terminal one. They are darker coloured than those of *B. japonica*, and the spines are stronger and smaller. A noble bush, and probably quite hardy.

BERBERIS DARWINI.—*Hooker.*

(Darwin's Berberry).

"Forms an evergreen shrub three to five feet high, of extraordinary beauty." A native of Chiloe and Patagonia. Leaves deep green when old, but with the points of the shoots conspicuously ferruginous in their young state. Although small, about three-quarters of an inch long, the leaves are so thickly placed as to cover the branches. Its deep orange-yellow flowers are in erect racemes. From its recent introduction, little is known of its habits; but there is no doubt that it is perfectly hardy.

BERBERIS DULCIS.

(Sweet-fruited Berberry.)

An interesting bush from South America, with

bright yellow solitary flowers, which are pendant on slender footstalks, giving the tree an elegant appearance. Leaves small, of a deep shining green; berries round and black. An excellent plant for a lawn.

BERBERIS EMPETRIFOLIA.—*Lamarck.*

(Cranberry-leaved Berberry.)

A small bush, with trailing branches, from the Cordilleras of Chili. It never grows above three feet high. Leaves small and linear, resembling those of a Heath. Its flowers are produced in May; they are solitary, or rarely in pairs, with shorter footstalks than those of *dulcis*. It thrives best in peat, or peat and loam, and is an excellent rock plant.

BERBERIS FORTUNI.—*Lindley.*

(Fortune's Berberry.)

A shrub five or six feet high, with smaller leaves than the other ash-leaved species, and with stiff erect branches. Leaves deep green. It requires a rich soil and cool situation.

BERBERIS FASCICULARIS.—*Sims.*

(Prickly Berberry.)

Syn.—*Mahonia fascicularis.*—De Cand.
Berberis pinnata.—Lagasca.

Indigenous to California and part of Mexico. A handsome shrub, growing eight or ten feet high in favourable localities, and produces its large racemes of yellow flowers in abundance. Its foliage is paler than

most of the other Berberries. Nor is it so hardy as many of them.

B. F.—*var.* hybrida.

Has all the beauty of the species, and is much hardier, so that it may be planted with success where that would not succeed.

BERBERIS GLUMACEA.—*Sprengel.*

(Chaffy-stemmed Berberry.)

A close dwarf bush, seldom more than a foot high, with pale yellow flowers, and round purple berries. From the shady woods of North-West America. Leaves eighteen inches long, with five or six pairs of leaflets, pale green on both sides.

BERBERIS JAPONICA.—*Lindley.*

SYN.—*Ilex japonica.*—Thunberg.
Mahonia japonica.—De Candolle.

The finest of all the Berberries; and Dr. Lindley says of it, "that if hardy," of which we have no doubt, "it will be the finest evergreen bush in Europe." It is especially remarkable for the size of its leaves, which are from fifteen to eighteen inches long, composed of several pairs of leaflets, and a terminal one. The former are each about three-and-a-half inches long, the latter usually five inches long. They are armed at the sides with strong spiny teeth, and have very stiff triangular points. The flowers, which were produced last season for the first time in this country, are in long racemes,

of a pale yellow or lemon-colour, deliciously and strongly scented with the odour of a Tea Rose.

BERBERIS NEPALENSIS.—*Wallich.*

(Nepal Berberry.)

A very fine plant from the mountains of Northern India, having pinnated leaves a foot long, with five or six pairs of leaflets. The flowers are large, in long racemes. Fruit dark purple. A moderate-sized bush.

BERBERIS TRIFOLIATA.

(Three-leaved Berberry.)

Handsome and distinct, from the north of Mexico. A dwarfish shrub, with foliage of a bluish-green, variegated. Leaflets glaucous on the under side. Flowers pale yellow, in small axillary nearly sessile racemes. Worthy a place in every garden.

BIGNONIA.—*Tournefort.*

(Trumpet Flower.)

BIGNONIA CAPREOLATA.—*Linnæus.*

(Tendrilled Bignonia.)

One of the most ornamental of hardy climbers, a native of North America. Leaflets large and handsome; flowers reddish-yellow, very beautiful. An excellent plant for covering a large space. Grow rapidly, and flowers freely.

BUPLEURUM.—*Tournefort.*

BUPLEURUM FRUTICOSUM.—*Linnæus.*

(Shrubby Bupleurum.)

Highly ornamental as a detached bush, becoming then very dense, and almost hemispherical in shape, and from three to five feet high. Its leaves are smooth and shining, and of a somewhat glaucous hue. It produces numerous heads of yellowish-green flowers, but they are not at all showy. Requires a deep and rather rich soil.

BUXUS.—*Tournefort.*

(Box Tree.)

Since the formal or geometrical style of gardening has been all but abandoned in England, the Box has lost much of its importance. As no plant is more patient of the shears, it was largely used in forming the various quaint devices for which the gardens of the last century were conspicuous. It is, however, a valuable evergreen, especially for planting beneath other trees; and as a detached specimen for a lawn it is very handsome. Besides the common Box, and its varieties and sub-varieties, some of which have variegated foliage, there are several species more or less distinct. The most conspicuous is the next named.

BUXUS BALEARICA.—*Willdenow.*

(Balearic Box.)

The leaves of this species are three times as large as the common Box, but of a much paler green. It is a native of rocky districts, both in European and Asiatic Turkey, where it grows seventy or eighty feet high. A handsome shrubbery plant. We have recently received from China two new and distinct species of Buxus. One has long, blunt, narrow leaves; the other nearly round leaves. Both are handsome, and form pretty, compact shrubs.

CAMELLIA.—*Linnæus.*

CAMELLIA JAPONICA.—*Linnæus.*

(Japan or Red single-flowered Camellia.)

Although this plant is perfectly hardy in many parts of the country, and forms, independently of its blossoms, a fine evergreen shrub, it is but rarely met with in the open garden. It should be more generally planted. The large deep green leaves have a fine appearance in the shrubbery. There are also many varieties which succeed well as wall plants, yet they are rarely met with except in the greenhouse. In cultivating them in the open air, whether in the shrubbery or against a wall, a northern aspect should be chosen in preference to a southern exposure. In the latter they are excited too early in the year, and

the loss of their flower-buds generally results. They succeed best in a cool and partially shaded situation. If exposed to the full sun, they lose the deep green colour of their foliage—for which, when in health, they are so conspicuous—and become sickly-looking and yellow. The Chinese, who pay great attention to their cultivation, always employ them as under-shrubs. The best situation in our gardens would be where they could enjoy a partial shade from trees, without being overhung by them. The soil they prefer is a rich light loam, or loam and peat. We have seen them succeed very well in a rich peat border with American plants. But, whatever the soil may be, it must be well drained. The effect of stagnant water is certain death, yet no plant enjoys an abundance of moisture more than the Camellia.

CAMELLIA. ———.

(Yellow Camellia.)

For a long time it has been known that the Chinese possessed a yellow Camellia, and much anxiety has been evinced among gardeners and botanists to obtain it. We have at length been fortunate enough to procure plants, from which flowers were produced last year. They are of the kind known as anemone-flowered, of a pale yellow or lemon-colour, the centre petals being the darkest. It flowers very freely, and both in habit and foliage is very neat. The leaves are smaller than in the ordinary kinds. Mr. Fortune believes it will be much hardier than any other known

Camellia. Our experience with it leads us to believe that he is correct.

CEANOTHUS.

CEANOTHUS DENTATUS.

(Toothed Ceanothus.)

A very interesting shrub from California, with bright blue flowers in stalked heads. Leaves small, deep green, and shining. We know not another plant so well adapted for covering a wall as this. A few months since, we saw some beautiful examples of it in the gardens of her Majesty at Osborne. The plants are trained thus: A leading shoot is carried perpendicularly upwards; the laterals, which it throws out abundantly, are nailed at right angles with the main stem, and at regular distances, one to every joint of the wall. These again throw out numerous shoots, which are kept cut back to within an inch or two of their origin. Quantities of spurs are thus formed, which quickly cover the spaces between the shoots, and nothing can be more beautiful than the evergreen surface which is produced. It is kept trimmed with a pair of shears or large scissors. Nor are the flowers destroyed by this severe pruning, but every spring they seem to vie with the leaves in abundance. So soon as they fade is the proper time to prune. It also grows very rapidly. In three years one small plant covered a space twelve feet high by twenty-four feet wide.

CEANOTHUS PAPILLOSUS.—*Torrey and Gray.*

Like the last, a hardy Californian shrub, with bright blue flowers; but less compact in habit, and with larger leaves. It is no way inferior to the last-named for covering a wall, and requiring a like soil and treatment with that species.

CEANOTHUS RIGIDUS.—*Nuttall.*

(Stiff-branched Ceanothus.)

An erect-growing shrub, with very stiff branches, small shining leaves, and deep purplish violet flowers. Very handsome; equal in beauty to those previously named, and if possible more hardy, but not so well suited for covering a wall.

CERASUS.—*Jussieu.*

§ LAURACERASI.

(Laurel Cherry Trees.)

CERASUS CAROLINIANA.—*Michaux.*

(Carolina Bird Cherry.)

A tree twenty or thirty feet high in its native country, with a short trunk and roundish head. The leaves are about three inches long, smooth, and shining on their upper surface. It produces small white flowers, which are followed by oval berries, nearly black, and remaining upon the tree the whole year.

It is rather tender, and requires a rich, deep, and rather dry soil.

CERASUS ILICIFOLIA.

(Holly-leaved Cherry.)

From California. A handsome shrub, with deep green shining leaves, very much serrated, resembling the Holly. Bears fruit like small plums, which are highly esteemed by the natives of the country where it is found, and which Hartweg, who discovered it, describes as having a fine flavour. Very hardy, and promises to be an acquisition to our hardy evergreen plants.

CERASUS LAUROCERASUS.—*Loiseleur Deslongchamps.*

(Common Laurel.)

Of this useful and well-known shrub there are two or three varieties, differing in the size of their leaves; there is also a variegated kind, but they can only be considered as curiosities, and in no way superseding the species. It is not so hardy as the Portugal Laurel, as in very severe seasons it is often much damaged by frost, while the latter never is. It succeeds very well beneath the shade and drip of other trees, which quality renders it valuable for undergrowth. As a hedge plant too it is favourably known.

CERASUS LUSITANICA.—*Loiseleur Deslongchamps.*

(Portugal Laurel.)

Both this and the next named are too well known to

need description; no evergreens form better standards in imitation of orange trees. This species has been employed with excellent effect as accessories to the Italian style of gardening at Trentham, a seat of the Duke of Sutherland. How much our gardens are indebted to it as an evergreen is patent enough.

CHAMÆROPS.—*Linnæus.*

CHAMÆROPS EXCELSA.

(Tall Fan Palm.)

A hardy palm from the hills of Northern China, where it grows thirty feet high, and, besides being a very handsome tree, is employed for many useful purposes by the natives. As an addition to our hardy plants it is very novel and interesting, and will no doubt succeed well in most parts of Great Britain.

CHAMÆROPS HUMILIS.—*Linnæus.*

(Dwarf Fan Palm.)

Another hardy species from the mountains of Southern Europe, and perfectly hardy in this country. A specimen has stood many years in the Botanic Garden, Edinburgh. It resembles the last in general appearance, but the leaves are smaller.

CLIANTHUS.

CLIANTHUS PUNICEUS.—*Solander.*

A New Zealand plant of extraordinary beauty. For training against a wall it has no rival. Its handsome pinnate foliage and large racemes of rich scarlet flowers are in the highest degree attractive. The plant is quite hardy in most parts of the country, and should be extensively planted.

COTONEASTER.—*Medicus.*

COTONEASTER MICROPHYLLA.—*Wallich.*

(Small-leaved Cotoneaster.)

As a rock plant, for covering a wall, or as a single specimen on the lawn, this species is equally valuable. It is also an excellent substitute for box edging, as it bears clipping well. In whatever situation it may be used, it will not fail to excite admiration. An eminent botanist has thus described it:—"Its deep glossy foliage, which no cold will impair, is when the plant is in blossom thickly strewed with snow-white flowers, which, reposing on a rich couch of green, have so brilliant an appearance, that a poet would compare them to diamonds lying on a bed of emeralds." Nor does its attractions end here; it is generally covered with a profusion of scarlet berries, which greatly adds to its

handsome appearance. Both this and the next species form beautiful weeping trees when grafted high on the thorn. Game and all sorts of fowls are excessively fond of the berries of this plant.

COTONEASTER ROTUNDIFOLIA.—*Wallich.*

(Round-leaved Cotoneaster.)

A more vigorous-growing plant than the last, and with larger leaves. As a shrub its height is three or four feet, but when planted against a wall, its branches extend to a much greater distance. It may be used for the same purposes as the last-named, with the exception of clipped edgings, its stronger habit rendering it less eligible for that purpose.

DABŒCIA.—*D. Don.*

Syn.—*Menziesia.*—Jussieu.

DABŒCIA POLYFOLIA.—*D. Don.*

A pretty dwarf evergreen bush, with deep green shining leaves; a native of Ireland, and often called the Irish Heath. Flowers purple. There is a variety with white flowers. It requires the same soil and treatment with hardy Heaths, to which plants it is nearly allied.

DAPHNE.—*Linnæus.*

DAPHNE COLLINA.—*Smith.*

(Hill-inhabiting Daphne.)

A pretty little shrub, growing three or four feet high, with delightfully fragrant pinkish flowers. Its habit is erect, and the flowers are borne on the points of the shoots. A native of Italy. Succeeds best on a warm border, in a soil composed of peat and loam.

DAPHNE CNEORUM.—*Linnæus.*

(Trailing Daphne.)

Has trailing branches. A neat shrub, producing both in spring and early autumn abundance of fragrant red flowers, in terminal heads. It thrives best in a cool situation, with a peaty soil, as the edges of American borders.

DAPHNE DELAHAYANA.—*Gardens.*

An interesting bush, very hardy, blooming profusely in May. Foliage and habit very neat.

DAPHNE FIONIANA.—*Gardens.*

Another garden variety, very pretty, resembling *Delahayana*, and blooming at the same season.

DAPHNE HYBRIDA.

Syn.—*Daphne Dauphinii.*—English Gardens.

Decidedly one of the most desirable of the genus. Its

flowers are purplish, and delightfully fragrant. Leaves large and shining, a free grower, and succeeds best in a warm sheltered situation. Blooms from February to April.

DAPHNE JAPONICA.

Resembles *D. indica rubra* in general habit, but has variegated foliage. The flowers are equally fragrant. A fine shrub, very hardy, grows rapidly, and will succeed in almost any soil or situation.

DAPHNE LAUREOLA.—*Linnæus.*

(Spurge Laurel.)

Found in woods in England, as well as in many other parts of Europe. A valuable shrub for underwood in plantations, as it thrives best in the shade. In fact, when planted in sunny places, it loses its beautiful green colour, and assumes a reddish-brown tint; height about four feet.

DAPHNE INDICA.—*var.* rubra.

Usually treated as a greenhouse plant, but is sufficiently hardy for the open air in many parts of the country. It requires a soil composed of loam and peat, and the situation should not be wet. The delightful fragrance of its blossoms has rendered it a favourite with all; and merely as an evergreen shrub it is very pretty.

DAPHNE PONTICA.

(Pontic Daphne.)

Resembles *D. laureola* in general aspect, but has more ovate leaves and sweeter-scented flowers. Height about five feet. Indigenous on the coast of the Black Sea. A very pretty shrub, and thrives well beneath other trees.

ERIOBOTRYA.—*Lindley.*

ERIOBOTRYA JAPONICA.—*Lindley.*

(The Loquat.)

Syn.—*Mespilus japonica.*—Thunberg.

Found in China and Japan, where it is largely cultivated for its fruit, which are not produced in this country except in hothouses; but it is well worthy of being more extensively planted in our gardens as an ornamental and picturesque evergreen. In the southern and other favoured parts of the country it may be grown as a standard, but in the majority of situations it will require a wall. It should not be planted where it will be subject to rough winds, or its large broad leaves will be much injured, and many destroyed. A rich loamy soil, or loam and peat will suit it best.

ERICA.—*Don.*

(Heath.)

Interesting evergreen shrubs, requiring similar treatment and soil with American plants; and like them, they prefer a cool and moist situation.

ERICA ARBOREA.—*Linnæus.*

(Tree Heath.)

Like many plants previously alluded to, this Heath is spring-tender, and must be treated accordingly. In its native habitats on the Pyrenees, it often grows fifteen or twenty feet high; but in this country, although a beautiful shrub, it seldom reaches that height except when planted against a wall. No hardy species is superior to it in beauty, but it will only succeed in the more favoured parts of the country. Flowers white and very fragrant.

ERICA AUSTRALIS.—*Linnæus.*

(Southern Heath.)

Seldom grows more than five or six feet high. A pretty pyramidal-shaped shrub, with purplish-red flowers, which are produced in great profusion during the whole of the summer.

ERICA CARNEA.—*Linnæus.*

(Flesh-coloured-flowered Heath.)

Syn.—*Gypsocallis carnea.*—Don.

Has prostrate branches, bearing drooping axillary

racemes of pale-red flowers; indigenous to Wales, and parts of Switzerland and Germany.

ERICA CINEREA.—*Linnæus.*

(Grey Heath.)

An interesting little shrub, growing about a foot high, with deep purple or rarely white flowers.

E. C.—*var.* coccinea.

A variety with bright red flowers, which are produced in greater profusion than in the species. It also continues in bloom for a much longer period.

ERICA MEDITERRANEA.

(Mediterranean Heath.)

SYN.—*Gypsocallis mediterranea.*—Don.

Grows five or six feet high, a native of the south of Europe. It has also been found in Ireland. Flowers red. A very pretty shrub.

E. M.—*var.* hibernica.

Not so tall as the species, and of a more compact habit.

ERICA VAGANS.—*Linnæus.*

(Wandering Heath.)

SYN.—*Gypsocallis vagans.*—Salisbury.

Indigenous to this country, as well as France and parts of northern Africa. A dwarf shrub, seldom

above a foot high, producing its purplish-red bell-shaped flowers in great abundance.

ESCALLONIA.—*Mutis.*

ESCALLONIA MACRANTHA.

(Large-flowered Escallonia.)

A very handsome shrub, of recent introduction, a native of Chiloe. It is quite hardy, and forms an excellent plant for training on a wall. The foliage is very beautiful, of a deep green, glabrous and shining.

ESCALLONIA MONTEVIDENSIS.—*De Candolle.*

From Brazil, where it grows in sandy places. It thrives very well in any ordinary garden soil in this country, and is very attractive in the early part of autumn, being then loaded with a profusion of white flowers, which renders it very conspicuous in the shrubbery. It is quite hardy, and grows very vigorously, forming a moderate-sized shrub, with ovate leaves about an inch long.

ESCALLONIA RUBRA.—*Persoon.*

(Red-flowered Escallonia.)

An excellent plant for a wall or for the shrubbery. In the former situation it will grow six or eight feet high, but in the latter it is much dwarfer, as its shoots generally take a curved direction, pointing to the

ground. It bears numerous drooping dull-red flowers, which are produced in the latter part of the summer.

EUONYMUS.—*Tournefort.*

(Spindle Tree.)

EUONYMUS JAPONICUS.—*Thunberg.*

An elegant shrub, indigenous to Japan, with erect branches and habit like the Sweet Bay. Both hares and rabbits are very fond of the leaves of this species, as well as of all the varieties, of which there are several; some with silver-margined and striped leaves, others with markings of a gold colour. All are highly ornamental shrubs. In Japan the species grows twenty feet high.

FABIANA.

FABIANA IMBRICATA.

(Imbricated-leaved Fabiana.)

In general appearance this very pretty plant resembles a Heath. Its foliage is pale green, and flowers white. They are about one-and-a-quarter inch long, tubular, and are produced in great profusion early in the spring. It thrives in any ordinary soil, or in peat beds with American plants.

FAGUS.

(Beech.)

FAGUS BETULOIDES.—*Mirbel.*

(Birch-like Beech.)

From Tierra del Fuego. An evergreen tree with neat foliage, perfectly hardy, and very handsome. We quote the description of this tree from Sir W. J. Hooker's "Guide to Kew Gardens." "It is remarkable for its beauty and small evergreen foliage, scarcely larger than that of the broad-leaved myrtle, and for its being the most southern tree in the world; indeed, there exists but little vegetation of any kind beyond it. Its size and form, however, in its native region, depend on the place of its growth. In sheltered valleys it attains a considerable size, with a trunk seven feet in diameter, so that Captain Philip King made large boats from one trunk; while on the exposed heights of Hermite Island the trees are so dwarfish and stunted, and the branches so densely compacted, that the traveller is able literally to walk upon the tops of them."

GARRYA.—*Douglas.*

GARRYA ELLIPTICA.—*Douglas.*

(Elliptic-leaved Garrya.)

The Male.

In favourable situations this is a very handsome

shrub, producing in winter and early in spring a profusion of long pendulous yellowish catkins, which have a singular and graceful appearance. The leaves are leathery, of a dull and somewhat greyish-green colour. Height five or six feet, a native of North Carolina.

The female plant has recently produced blossoms for the first time in this country, but they are wholly destitute of beauty.

GAULTHERIA.—*Linnæus.*

GAULTHERIA PROCUMBENS.—*Linnæus.*

(Procumbent Gaultheria.)

For the fronts of American borders, or in cool moist woods in peaty soil, this is a useful and interesting little plant. It seldom grows above four or five inches high. The flowers, which are produced in August, are followed by small red berries, which remain a long time upon the plant.

GAULTHERIA SHALLON.—*Pursh.*

(Shallon Gaultheria.)

Has procumbent or partially erect stems, broad glabrous leaves, and whitish flowers. In a good peat soil, where it succeeds best, it grows two or three feet high; but it also thrives well in a sandy loam. It is one of the few plants which are found to thrive in the deep shade of Pine woods, for which, and similar

situations, it is invaluable. The fleshy purple berries, which are produced in abundance, are eagerly sought for by game.

HEDERA.—*Swartz.*

(Ivy.)

HEDERA HELIX.—*Linnæus.*

(Common Ivy.)

The general character and uses of our common ivy are well known, but it is not so usefully employed as it should be. There are many situations in gardens, as beneath the shade and drip of trees, where grass quickly dies, and where but few other plants will thrive at all, which Ivy would rapidly cover with a beautifully green surface; and as a quick-growing evergreen climber for covering old walls and other unsightly objects it has no rival. There are many varieties cultivated in gardens, differing in the form or size of their leaves and in the colour of their fruit; while others have white or yellow variegated foliage.

HEDERA REGNERIANA.—*Gardens.*

Has much larger and thicker leaves than any other Ivy, and is more robust. It is a very fine plant, and deserves to become generally known.

HELIANTHEMUM.

(Sun Rose.)

All the species are low, bushy, or trailing plants, suitable for rock-work, or for the fronts of beds of other plants. They are all more or less ornamental, with red, white, or yellow flowers, or of different shades of those colours, which are produced abundantly. Large masses of them make a brilliant appearance when fully expanded, but they are always closed except when the sun shines.

HYPERICUM.—*Linnæus.*

(St. John's Wort.)

HYPERICUM CALYCINUM.—*Linnæus.*

(Large-calixed St. John's Wort.)

One of the most useful flowering plants for covering banks or bare places in old shrubberies or under trees. It is very dwarf, never higher than twelve or eighteen inches. Leaves dark and shining, flowers bright yellow, two or three inches across. It has creeping stems, which rapidly extend over a large space. It thrives well under the drip and shade of trees, and prefers a light soil.

ILLICIUM.

(Aniseed Tree.)

The two species named, although usually confined to the greenhouse, may be successfully grown in the open air. They should have situations somewhat screened from the influence of the sun, or they lose much of the beauty of their foliage. For soil, they prefer a sandy loam, or loam and peat. They are both slow-growing plants.

ILLICIUM FLORIDANUM.—*Ellis.*

(Florida Illicium.)

A branching shrub five or six feet high, with smooth shining leaves, generally of a reddish tint, as are also the leaf-stalks, and branches. The flowers, both in colour and form, resemble those of *Calycanthus floridus*.

ILLICIUM RELIGIOSUM.

(Holy Illicium.)

Resembles in general character the one previously mentioned, but its leaves are stouter, and destitute of the red tint for which that is conspicuous. The flowers, too, are larger, and of a yellowish green. A very pretty shrub, quite hardy in the south, and in other favourable localities.

ILEX.—*Linnæus.*

(Holly.)

All the species and varieties, of which there are now a great many in cultivation, are deserving of notice, whether as mere shrubbery plants, or as ornamental specimens for the dressed lawn, for in whatever situation they are employed, they will be found highly ornamental. Viewing them collectively, they are at once rich in the colour of their foliage, neat in habit, picturesque in form, and various in its character. Loudon, in his "Arboretum," says, "As an ornamental shrub or low tree, the Holly is surpassed by no evergreen whatever." All the kinds thrive best in a rich light loam, but they will succeed in any ordinary soil, provided it is not cold and wet.

ILEX AQUIFOLIUM.—*Linnæus.*

(Common Holly.)

One of the most useful evergreens we possess, thriving well under a great diversity of circumstances. In exposed situations, as an ornament in itself, or as shelter for other trees, it is scarcely inferior to the evergreen oak; and as a hedge plant it has no rival, either for appearance, efficacy, or durability. Objections are sometimes made against its slow growth; but such are only tenable when the plant is young, for when it is thoroughly established, it progresses quite as rapidly as any other shrub, and as it bears clipping well, it

may be kept to any required dimensions. It will also retain its verdure, and make an excellent undergrowth beneath the shade and drip of other trees. There are many varieties of the common species.

I. A.—*var.* angustifolia.

(Narrow-leaved Common Holly.)

Has much narrower leaves than the species.

I. A.—*var.* altaclerensis.

(High Clere Common Holly.)

A handsome variety, with very broad thin leaves.

I. A.—*var.* ciliata.

(Ciliated-leaved Common Holly.)

Leaves about two inches long, with small prickles like hairs along their margins.

I. A.—*var.* crispa.

(Curled-leaved Common Holly.)

A variety, with curled or twisted leaves.

I. A.—*var.* crassifolia.

(Thick-leaved Common Holly.)

Has very thick leaves, which are deeply serrated.

I. A.—*var.* ferox.

(Fierce or Hedgehog Holly.)

In this variety each leaf has its edges rolled back,

which gives it a cylindrical figure, and the surface being thickly clothed with spines, the term Hedgehog Holly is by no means inappropriate. It is a very curious variety.

I. A—*var.* laurifolia.

(Laurel-leaved Common Holly.)

Leaves without prickles, resembling both in shape and size those of the Sweet Bay, *Laurus nobilis.*

I. A.—*var.* marginata.

(Thick margin-leaved Common Holly.)

Has no prickles, and the leaves, which are nearly as broad as long, are very much thickened at the margins.

VARIEGATED VARIETIES OF THE COMMON HOLLY.

Of these there are numerous kinds, differing much in the size and markings of their leaves. They may be all included under the following heads :—

White-edged-leaved.
Gold-edged-leaved.
White-spotted-leaved.
Gold-spotted-leaved.

To which may be added,

The *Silver-blotched* Hedgehog Holly, and
Gold-blotched Hedgehog Holly.

VARIETIES OF THE COMMON HOLLY DISTINGUISHED BY THE COLOUR OF THEIR BERRIES.

Yellow-berried.
White-berried.
Black-fruited.

ILEX BALEARICA.—*Desfontaines.*

(Minorca Holly.)

Readily distinguished by its yellowish-green leaves, which are slightly waved at the edges, and have but few prickles.

ILEX CORNUTA.—*Lindley.*

(Horned-leaved Holly.)

A new and very important addition to our hardy evergreens. Its general habit is very picturesque, to which the peculiar form of its very dark green leaves contributes in a great degree. They are often four inches long by three inches broad. Dr. Lindley, in "Paxton's Flower Garden," says, "It is a very remarkable plant, and promises to be, to English gardens, of much importance, on account of its hard dark-green evergreen foliage and large berries. The leaves are almost always furnished with three strong spines at the end, but when the plant is young there are added one or two more on each side. In the old plants the latter wholly disappear, while the end spines will occasionally extend, turn up their edges, and assume the appearance of strong horns." It is a native of the north of China, and perfectly hardy.

I. c.—*var.* furcata.

Although a variety of *I. cornuta*, and resembling that species when young, it is perfectly distinct; and in older plants the similarity is very slight. The leaves are almost flat, while in *cornuta* the edges are much curved under, giving them a convex form. Nor are they so intensely green as those of the species, and the spines are less rigid and not so broad. It is a very fine plant, and differs from any other Holly in cultivation. We received it from China, and it has proved quite hardy.

ILEX DAHOON.—*Wallich.*

(Dahoon Holly.)

Has elliptical, almost entire leaves, with somewhat revolute margins. It is quite hardy, and forms a beautiful shrub eight or ten feet high.

ILEX DIPYRENA.—*Wallich.*

(Two-seeded-berried Holly.)

A very interesting and picturesque shrub, a native of Nepal and Chinese Tartary. Height about twelve feet.

ILEX MICROCARPA.—*Lindley.*

(Small-fruited Holly.)

From the north of China, and quite hardy in this country. It is very unlike any other known Holly.

The leaves, which have a purplish tinge when young, but are of a deep green when full grown, are fleshy, quite smooth on both sides, about two-and-a-half inches long, and of an ovate form. The berries, which are small, are borne in large axillary clusters. We received it from Tein-tung, in the north of China.

ILEX LATIFOLIA.

(Broad-leaved Holly.)

This very fine species is from Japan. The leaves are deep green, from six to eight inches long by two or three inches broad, very stiff, smooth, and shining, with serrated edges. Very hardy, but thrives best in a cool and moist situation, otherwise it loses much of the rich green of its leaves. Height about twenty feet.

KALMIA.—*Linnæus.*

KALMIA LATIFOLIA.—*Linnæus.*

(Broad-leaved Kalmia.)

Thrives well under the same circumstances as the Rhododendron and other American plants. Independently of its being a fine evergreen shrub, it is also valuable for the profusion of beautiful pink flowers which it produces in June and July. It forms a compact shrub, from five to ten feet high. It may be safely planted near game preserves, as neither rabbits nor hares will attack it. There are several species, all of which require peat soil and a cool situation.

LAURUS.—*Pliny.*

(Laurel or Bay Tree.)

LAURUS CAROLINENSIS.—*Catesby.*

(Carolina Laurel, or Red Bay.)

Less hardy than *L. nobilis*, and can only be successfully cultivated in the most favourable situations, or as a wall plant. It has fine foliage, the leaves being six inches long.

LAURUS NOBILIS.—*Linnæus.*

(Noble Laurel, or Sweet Bay.)

Scarcely any garden is, and none should be, without some examples of this fine evergreen. As a single plant, or associated with others, it is highly attractive. It also makes excellent garden hedges, and is one of the best plants for training as a standard. In this latter respect it is scarcely inferior to the Portugal Laurel. The natural habit of this plant is to form a conical shrub, branched to the ground. Not very hardy, as in severe winters it suffers even in the south of England.

LAURUS REGALIS.

(Californian or Royal Sweet Bay.)

Indigenous to the hill districts of California, and very hardy in this country. It is perfectly distinct from the Common Bay, the leaves being three or four inches long, often more, by about three-quarters of an

inch wide at the base, and gradually narrowing to the point. They have the same odour when bruised as the Sweet Bay. Plants are as yet rare; but when it is more generally known, it must be admired for its unique appearance. A tall tree.

LARDIZABALA.

LARDIZABALA BITERNATA.—*Ruiz and Pavon.*

The few evergreen climbers which our gardens possess render any acquisition to the number of great value. This plant is highly attractive both for its fine foliage and drooping racemes of dark purple flowers. It is very hardy, a rapid grower, will cover a large space, and is not particular as to soil or situation.

LIGUSTRUM.—*Tournefort.*

(Privet.)

LIGUSTRUM JAPONICUM.—*Thunberg.*

(Japanese Privet.)

Syn.—*Ligustrum latifolium.*—Vitman.

A shrub six or eight feet high, with large, thick, ovate leaves of a beautiful green. Very distinct, and at present but little known in gardens.

LIGUSTRUM LUCIDUM.—*Aiton.*

(Shining-leaved Privet.)

SYN.—*Ligustrum chinensis.*—Gardens.

A handsome shrub, with large shining leaves and white flowers, which are produced at the beginning of autumn. A native of China, where it is found as a tree fifteen or twenty feet high, which character may be given to it in our gardens by training it to a single stem. It does not retain the whole of its foliage through the winter, except in the more favourable parts of the country.

LIGUSTRUM SEMPERVIRENS.

(Italian or Evergreen Privet.)

For neat hedges, or for undergrowth to plantations, this species is well adapted; for the latter purpose especially, as it is not injured by the drip from other plants. It is not a desirable shrub to associate with others in the borders, as it soon encroaches beyond the limits assigned it, by throwing up a quantity of suckers.

LONICERA.—*Desfontaines.*

(Honeysuckle.)

LONICERA FLEXUOSA.—*Thunberg.*

(Flexible-stemmed Honeysuckle.)

A creeping plant; grows very rapidly. Useful for

covering a large space quickly. Requires good attention to pruning, or the lower branches soon become naked.

MAGNOLIA.

MAGNOLIA GRANDIFLORA.—*Linnæus.*

(Large-flowered Magnolia.)

A noble tree, indigenous to North America, where it grows from sixty to one hundred feet high. In English gardens it is chiefly used as a wall tree; but it may be grown as a standard in situations not exposed to rough winds, as its large leaves are often much damaged by them. The large size of its flowers, which are often eight or ten inches across, and its noble foliage, have rendered it a very popular plant. There are many varieties in cultivation, the most important of which is *exoniensis*. It is better adapted for growing as a standard than the species.

MYRTUS.

MYRTUS COMMUNIS.

(Common Myrtle.)

In many parts of England, especially in the south and south-western counties, several species of myrtle succeed very well, both as shrubs on the lawn or trained to a wall. It is said that on the continent,

where it grows wild, plants are found flourishing by the sea side, and where they are washed by the spray. There are many species and varieties in cultivation, some with variegated foliage. We believe the hardiest is that known as the Roman or Broad-leaved Myrtle, *M. c. romana.*

PASSIFLORA.

(Passion Flower.)

PASSIFLORA CÆRULEA.

(Common blue-flowered Passion Flower.)

A handsome climbing plant, usually kept in greenhouses, but is quite hardy against a wall in most parts of the country. Flowers bluish, which are followed by orange-coloured fruit, resembling large oval plums. A native of Peru, but an old inhabitant of our gardens.

PERNETTYA.—*Gaudichaud.*

PERNETTYA MUCRONATA.—*Gaudichaud.*

Syn.—*Arbutus mucronata.*

A low shrub, with dark green shining foliage, and small white flowers. The plant is most attractive when in fruit; its deep red berries contrasting beautifully with the rich colour of the leaves. Grows about

two feet high, with spreading branches. Thrives best in peat soil, or peat and loam.

PITTOSPORUM.—*Banks.*

PITTOSPORUM TOBIRA.—*Aiton.*

(Tobira Pittosporum.)

Although this handsome evergreen shrub will succeed as a standard in the most favoured parts of the country, it is best adapted for a wall. Height generally about six feet. Flowers cream-coloured, which are produced in April. Leaves dark glossy green. Thrives well in ordinary soil if dry and healthy.

PITTOSPORUM UNDULATUM.

(Undulated-leaved Pittosporum.)

Quite distinct from the preceding, and equally hardy; except in a few situations it is much better treated as a wall plant, in which position it is very ornamental, producing in summer a profusion of cream-coloured flowers, which contrast beautifully with the deep green of its foliage.

POLYGALA.

POLYGALA CHAMÆBUXUS.—*Linnæus.*

(Dwarf Box-leaved Polygala.)

A neat little plant, seldom growing above six inches

high, with leaves like the Box, and yellow flowers. Its proper situation is in cool peat beds, where it may be used as an edging to American plants.

PRINOS.—*Linnæus.*

(Winter Berry.)

PRINOS GLABER.—*Linnæus.*

(Glabrous Winter Berry.)

A low evergreen shrub, from the shady woods of Canada. Naturally it grows in sandy soils. In this country it forms a handsome bush, three or four feet high, densely clothed with very shining green leaves. The small white flowers are produced late in the summer, and are followed by nearly black berries.

PHILLYREA.—*Tournefort.*

The Phillyrea is often confounded with Alaternus; but independently of more minute distinctions, an obvious one exists, in the former having opposite leaves, the latter alternate ones. They are all handsome shrubs, of neat habit; and they are less affected by the smoke of towns than many other plants. Their deep green foliage forms an admirable back-ground to set off light-coloured shrubs or flowering plants; and they have the excellent quality of not being

particular as to soil and situation. There are many species in cultivation; but *angustifolia*, *media*, and *latifolia* are the best.

PHOTINIA.—*Lindley.*

PHOTINIA SERRULATA.—*Lindley.*

Though too tender for a standard, in many parts of the country it is a valuable plant for covering a wall. Leaves deep green, shining, large and handsome. Height ten or twelve feet; but sometimes considerably more. Where it can be grown as a standard it will be found highly ornamental: soil in which thorns are found to succeed will equally suit this plant.

QUERCUS.—*Linnæus.*

(Oak.)

QUERCUS BALLOTA.—*Desfontaines.*

(Sweet Acorn Oak.)

Though closely allied to *Q. Ilex*, its appearance is distinct; but both in general appearance, and in the form of its leaves, it varies much in different situations. It occurs naturally in Morocco and Algiers as a tree, twenty-five or thirty feet high. Requires a favourable situation.

QUERCUS GLABRA.—*Thunberg.*

A tree indigenous to Japan, with large lanceolate leaves, glabrous on both sides, and with slightly spreading branches. It is considered too tender for our climate; but in the past autumn we saw a fine example, three feet high, in the grounds of Lord Burlington, Holkar Hall, near Lancaster, which appeared to be very hardy.

QUERCUS ILEX.—*Linnæus.*

(Evergreen Oak.)

No tree is superior to this for planting on the sea coast, whether for shelter or ornament; and, indeed, in any exposed situation, where little success attends the attempt to establish other trees, the evergreen oak will succeed, and it has the additional valuable properties, of being both a rapid grower, and a handsome tree. It also bears the smoke and impure atmosphere of towns much better than most other evergreens: yet, with all its good qualities, it is only sparingly used, and is rarely met with, except as an occasional specimen among ornamental evergreens in pleasure grounds. This has, no doubt, arisen from the many failures usually experienced in transplanting it. That no evergreen removes under the usual system with greater risk, we are well aware. Yet as we have previously shown, success may be attained even with large plants; but, of course, such measures could only be adopted with a limited number. When the

intention is to plant a large quantity, either for shelter, for ornament, or for timber, for which it is very valuable, rivalling even the Common Oak in strength and durability, we recommend the following method:—As soon as the acorns are gathered, let them be sown in small pots, one in each, and plunged in the ground, just deep enough to cover them; but they must be carefully watched, to prevent the depredation of mice, which are sure to attack them. It is the better to preserve the acorns from destruction, that we recommend them to be sown in pots, or the trouble would be less to sow them where they are to remain. If properly attended to, by August the young oaks will be from four to six inches high. The ground having been previously prepared to receive them, they may now be planted out; and in the following year they will make long clean growths, and preserve good leading shoots, which they rarely do when raised and transplanted in the ordinary way; for, unlike most other trees and shrubs, however often they may be transplanted, very few fibrous roots are produced, and the less frequently they are removed before occupying their final position the better.

Although the evergreen oak is generally supposed to thrive best in a strong loamy soil, it is by no means particular in that respect, and may be successfully planted in almost any kind. Upon strong clays, in exposed places, and where scarcely any other tree would progress at all, there it can be employed with advantage. Some of the finest trees in the country are in the grounds at Holkham House, the seat of the Earl

of Leicester, in Norfolk. Many of them are from fifty to eighty feet high, with trunks five and six feet in diameter at eighteen inches from the ground. They are growing in a dry chalky soil.

Too much cannot be said in praise of this tree. It is the most valuable one we possess, and should be extensively planted: no soil or situation seems to disagree with it. The nearer the sea, the more luxuriantly it grows; where almost every other, certainly every other evergreen, would fail, there it may be planted with perfect success.

Q. I.—*var.* Fordii.

A very distinct and handsome variety: in form it is a pointed cone; the branches growing erect, almost parallel with the trunk. Leaves small, pointed, twisted, dark green above, pale beneath. Forms a highly ornamental tree when planted singly.

Q. I.—*var.* variegata.—*Gardens.*

Has the leaves beautifully variegated with white.

Q. I.—*var.* latifolia.—*Loddiges.*

The leaves of this variety are very much larger than in the species, and nearly entire.

QUERCUS INVERSA.—*Lindley.*

Received by us from the north of China, and has proved hardy at Bagshot. It is a fine evergreen tree, with apparently the habit of the common Evergreen Oak.

Its leaves are deep green, quite smooth and shining on the upper side, but having a short glaucous down beneath; about three inches long, abruptly narrowed to a blunt point. The male flowers are produced in long tails, at the ends of the fruit-bearing branches, and are a very attractive feature, when in perfection.

QUERCUS REPENS.

A very interesting low-growing species, with the habit of a shrub.

QUERCUS SUBER.—*Linnæus.*

(Cork Tree.)

This tree is not so hardy as the Evergreen Oak, to which it has a great resemblance, especially to the broader-leaved varieties; but it forms a handsome tree in many parts of the country. Height from twenty to thirty feet. There are many varieties in cultivation, differing much in the size and form of their leaves.

QUERCUS SCLEROPHYLLA.—*Lindley.*

An evergreen oak, with noble foliage, received by us from the same district as *Q. inversa.* The leaves are often six inches long, by three inches broad; of a thick leathery texture, quite smooth, and of a bright green on the upper surface, but glaucous and covered with a fine down beneath. The fruit is borne in compact spikes, three or four inches in length. A very fine and distinct plant.

QUERCUS ZAN.

SYN.—*Quercus Mirbeckii.*

A large tree with the habit and general appearance of the Common Oak, but with much larger leaves, which are evergreen.

RHODODENDRON.

For the proper treatment of these beautiful plants, we beg to refer the reader to the treatise on the cultivation of American plants, at page 106.

We have here mentioned and described some of the hardier species; and have also given lists, arranged according to their colours, of some of the best late flowering hybrids. Any of those named may be relied on as being perfectly hardy, and not blooming till after all danger from spring frosts is over.

RHODODENDRON ARBOREUM ALBUM.

(White-flowered Tree Rhododendron.)

In its native habitats on the Himalayas it attains the size of a tree; in our gardens it is much lower, generally appearing as a robust shrub. It is perfectly hardy, and is a handsome evergreen; but usually flowers too early for our climate. In situations where it could be retarded, there would be a chance of seeing the beautiful trusses of flowers perfected. Treatment

analogous to what we have recommenced for spring-tender plants would be the best means to accomplish it.

RHODODENDRON CAMPANULATUM.—*D. Don.*

(Bell-shape-flowered Rhododendron.)

Although this fine shrub will only perfect its flowers in the open air, in the more favourable localities, it deserves to be cultivated for its fine foliage. As its flowers, from being produced so early, are usually destroyed by late spring frosts, the only chance of seeing them properly developed, would be to retard it as much as possible. The treatment recommended for other spring-tender plants would be the readiest means of effecting that. A dwarf shrub from the mountains of Nepal.

RHODODENDRON CAUCASICUM.—*Pallas.*

(Caucasian Rhododendron.)

A dwarf shrub, with procumbent branches. Leaves rough, and green above, ferruginous beneath. Flowers purple or white. Indigenous on the mountains of Caucasus, about the line of perpetual snow. It seldom grows above twelve or fifteen inches high, and blooms at the end of summer.

RHODODENDRON CATAWBIENSE.—*Michaux.*

(Catawba Rhododendron.)

A shrub of moderate height, with smooth, blunt, oval leaves, and purplish flowers; but there are

numerous hybrids in cultivation, having flowers of almost every shade of purple and lilac. It is a native of N. America, and is abundant in the states of Virginia and Carolina.

RHODODENDRON FERRUGINEUM.—*Linnæus.*

(Rusty-leaved Rhododendron.)

Conspicuous for the very deep rust-colour of the under side of its leaves. Flowers red; leaves about the size of those of the Box tree. Very dwarf and pretty.

RHODODENDRON HIRSUTUM.—*Linnæus.*

(Hairy Rhododendron.)

A pretty dwarf shrub, with red or scarlet flowers. Leaves small, and hairy on the margins and beneath; but smooth upon the upper surface. A native of the European Alps. Height about two feet.

RHODODENDRON MAXIMUM.—*Linnæus.*

(Largest Rhododendron.)

A shrub twelve or fifteen feet high, indigenous to North America, on poor soils, mostly in the vicinity of lakes or rivers; and flowering a great part of the summer. Flowers pale red, spotted with yellow.

RHODODENDRON PONTICUM.

(Pontic Rhododendron.)

One of the most useful evergreens known. Introduced to this country from Armenia in 1763. As

that country was then called Pontus, it acquired the name of Pontic Rhododendron. If planted on a lawn by itself in favourable situations, it forms a dense hemispherical bush, and produces its large heads of purple flowers in abundance. The numerous hardy hybrids, with much superior flowers, have now superseded this species in the flower garden; but it may be planted in any situation where dense evergreen growths are desired, at least wherever soil and situation are favourable to it.

It is also a most valuable plant for undergrowths in woods, as it succeeds very well in the shade and beneath the drip of other trees, if proper precautions are taken in planting it. Nor is it attacked by rabbits and hares, as many other plants are, which makes it valuable for covers where they abound.

HARDY HYBRID RHODODENDRONS ARRANGED UNDER THEIR RESPECTIVE COLOURS.

BLUSH.

Album elegans.	Delicatissimum.
Portia.	Madame Sontag.
Norma.	

LILAC.

Everestianum.	Catawbiense.

LILAC WITH JET BLACK SPOTS.

Nigricans.

LILAC WITH DOUBLE FLOWERS.

Fastuosum.
Vervaeneanum.
Hyacinthiflorum.
Catawbiense flore pleno.

*** These remain much longer in bloom than those with single flowers.

PURPLE, AND PURPLE TINGED WITH CRIMSON.

Antagonist.
Cyanum.
Queen Victoria.
Sir Isaac Newton.

ROSE-COLOURED.

Elegans.
Antonio.
Helena.
Cerito.
Magnet.
Metaphor.
Albion.
Hartley Luttrell.

ROSE WITH WHITE THROAT.

Nobleanum bicolor.
Humboldtii.
Betsy Trotwood.
Pulchellum.
Mrs. Bartholomew.

ROSE VERY MUCH SPOTTED.

Deception.
Paxtonii.
Mrs. Loudon.
Sir Walter Scott.
Bouquet de Flora.
Geranoides.
David Copperfield.
Picturatum.

PALE ROSE WITH VERY LARGE FLOWERS AND TRUSS.

Towardii. | Sabrina.

RED AND CRIMSON.

Raeanum. | Standishii.
Erectum. | Maid of Saragossa.
Ianthe. | Vivid.
Reedianum. | Blandyanum.

SCARLET.

Coccineum. | Compactum.
Lindseyii. | Ignescens.

WHITE, TINGED ON THE MARGINS OF THE PETALS, WITH ROSE OR PINK.

Fairy Queen. | Gem.
Regina. | Zuleika.

FRENCH WHITE AND BLUSH, VERY MUCH SPOTTED.

Pictum. | Multimaculatum.
Delicatum. | Mrs. Hemans.
Cinnamomum Cunninghamii.

WHITE, AND WHITE WITH NUMEROUS SPOTS.

Nivaticum.
Album grandiflorum.
Bride (variegated foliage).
Coriaceum.
Alexandrina.

RHAMNUS.—*Lamarck.*

(Buckthorn.)

RHAMNUS ALATERNUS.—*Linnæus.*

(The Alaternus.)

Endures the smoky atmosphere of towns much better than most other evergreens, which quality renders it highly valuable for many situations. It also bears clipping well; but its general habit is very compact, and if not injured by other trees, becomes clothed with branches to the ground. There are several varieties, as the *round-leaved* and *narrow-leaved;* with others having variegated foliage.

ROSA.—*Tournefort.*

(Rose.)

ROSA BRACTEATA.—*Wendland.*

(Lord Macartney's Rose.)

Introduced from China in 1795 by the nobleman

whose name it bears. For covering a low wall it is very useful. The leaves are of a bright shining green. Flowers large, single white.

The hybrid known as *Maria Leonida* has large double flowers; but they do not expand, except in warm situations. It is a handsome evergreen.

ROSA FORTUNI.

(Fortune's Rose.)

From the north of China. A handsome evergreen climbing species. Grows very rapidly. Leaves bright shining green. An invaluable plant for covering large spaces quickly. Flowers white.

RUSCUS.—*Linnæus.*

(Butcher's Broom.)

RUSCUS ACULEATUS.—*Linnæus.*

(Prickly or Common Butcher's Broom.)

A dwarf plant, common in the woods in many parts of England. Height one to three feet, bearing in winter a quantity of bright red berries. Its stems are biennial, dying down the second year like the raspberry. There are many situations in woods and shrubberies where it can be planted with advantage, as it delights in shady places.

RUSCUS RACEMOSUS.—*Linnæus.*

(Racemose Ruscus, or Alexandrian Laurel.)

Taller than the last, and with larger and more lively-coloured leaves. Height about four feet, a native of Portugal. Forms a handsome under-shrub, and thrives very well beneath the shade and drip of other trees.

SKIMMIA.

SKIMMIA JAPONICA.—*Thunberg.*

A fine, hardy, compact-growing, evergreen shrub, lately received from the north of China. The leaves are thick and fleshy, of a deep green, smooth on both sides, five or six inches long by one-and-a-half broad; of an oblong shape, gradually narrowing to the foot-stalk, and acute at the point. In May it is covered with large, dense heads of greenish-yellow flowers, which emit a very strong and agreeable odour, resembling that of *Daphne indica*. These are followed by bunches of bright scarlet oval berries, which remain upon the plant all the following winter. It produces flowers when but two inches high, and fruits at five or six inches. As an ornamental shrub for the lawn, or for the winter decoration of the conservatory, it has scarcely a rival. No degree of cold seems to injure it. Even when but a few inches high, and the lower

leaves resting on the soil, it is wholly unaffected by frost.

SMILAX.—*Linnæus.*

Considering the scarcity of evergreen climbing plants, it is a matter for surprise that this genus has not been more employed as such. Several of the species are valuable for their foliage; the flowers of none are conspicuous. At present they are but imperfectly known, but they deserve to be brought into notice. They require no more attention than ordinary climbing plants, and succeed well in any common garden soil.

SYMPLOCOS.

SYMPLOCOS JAPONICA.—*De Candolle.*

Syn.—*S. lucida.*—Zuccarini.

A hardy shrub or low tree from Japan, where it grows twenty feet high, with leaves about the size of those of the Sweet Bay. It is a favourite plant with the Japanese for decorating the shrines of their idols. As it is but very recently introduced, we cannot say whether it will be sufficiently hardy for the northern parts of the country, but we believe it will be.

TAMARIX.

(Tamarisk.)

TAMARIX GALLICA.—*Linnæus.*

(French Tamarisk.)

An invaluable shrub for planting near the sea. It grows very rapidly, and sometimes reaches the height of thirty feet. Its usual height is, however, about fifteen or twenty feet. It is not thoroughly an evergreen in this country; but we have mentioned it, because of its great value for the purposes alluded to. It is indigenous to many other parts of the globe, as well as on the coasts and river-banks of our own island.

THEA.—*Linnæus.*

(Tea Tree.)

THEA VIRIDIS—*Linnæus.*

(Green Tea.)

A handsome shrub, six to eight feet high, with light green foliage, and large white fragrant flowers. It is nearly allied to the Camellia, and requires a like soil and situation. When planted singly, it forms a dense bush, the lower branches resting on the ground. Handsome for a lawn plant.

ULEX.—*Linnæus.*

(Furze, Whin, or Gorse.)

ULEX EUROPÆA.—*var. Flore pleno.*

(Double-flowered Common Furze.)

A neat and compact shrub, profusely covered from April to Midsummer with large double blossoms. It should only be planted in patches by itself, or singly; when crowded by other plants, it soon loses its lower foliage, and branches, which greatly detracts from its beauty. It is best seen when planted on a lawn, or on sloping banks of turf.

ULEX STRICTA.—*Mackay.*

(Upright-growing or Irish Furze.)

Unlike the last named, this rarely produces a flower; but it is valuable for its compact habit and deep green foliage. Its branches are erect, and nearly destitute of spines. For neat garden hedges it is admirably adapted, as its growth is perfectly erect, and requires but little or no clipping. Its colour is a deep sombre green, and does not harmonise well with other shrubs.

VIBURNUM.—*Linnæus.*

VIBURNUM TINUS.—*Linnæus.*

(Laurestinus.)

Our gardens do not possess a more useful shrub

than the Laurestinus. It is highly attractive, whether for its neat habit and foliage, or for its large flat corymbs of white flowers, which are produced in winter and early in spring, when scarcely another flower can be found in the garden. It does not thrive beneath the shade of other trees; but prefers an open situation, and a somewhat stiff soil. There are several varieties, the principal of which are *lucida* and *stricta;* the former with very shining leaves, and larger flowers than the species; the latter with rigid branches, and a more erect habit.

VIBURNUM SUSPENSUM.

A most beautiful plant from Japan, said to be very hardy, and having large heads of very sweet-scented flowers.

VACCINIUM.—*Linnæus.*

(Whortleberry.)

All the evergreen species are low interesting plants. Most of them bear deep purple berries, covered with a rich bloom. They require peat soil and a cool situation.

VACCINIUM BUXIFOLIUM.—*Salisbury.*

(Box-leaved Whortleberry.)

A neat little plant, six or eight inches high, from

North America, with leaves resembling those of the Box tree in size, but of a darker green.

VACCINIUM CANADENSE.—*Richards.*

(Canada Whortleberry.)

A much-branched dwarfish shrub, with whitish flowers, deep blue, almost black berries, and hairy leaves an inch long.

VACCINIUM OVATUM.—*Pursh.*

(Ovate-leaved Whortleberry.)

From the banks of the Columbia River. A very pretty much-branched shrub, with handsome foliage, resembling *Pernettya mucronata.* Height three to four feet.

YUCCA.—*Linnæus.*

(Adam's Needle.)

Although not adapted for mixing with other shrubs, there are places in all gardens where Yuccas may be planted with good effect. On terraces, flat lawns, in geometrical gardens, or associated with the architectural accessories of formal gardens, they are not

only appropriate, but highly ornamental. As they are naturally sea-side plants, they may of course be successfully grown in similar situations in gardens. The hardiest species are *gloriosa*, *superba*, *aloifolia*, and *filamentosa*.

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ESPECIALLY ADAPTED FOR PARTICULAR SOILS AND SITUATIONS.

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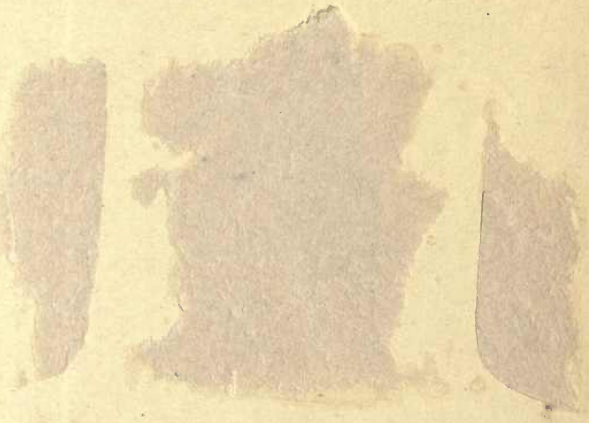
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